The Builder.

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Architectural Drawings at the Salon.

THE collection of designs in the architectural galleries of the Salon is of much the same kind as usual; the principal works being schemes of restoration, or imaginary designs, shown by drawings on a very large scale, with a comparatively small sprinkling of illustrations of executed works or commissions. The leading exhibitor is M. Chedanne, whose magnificent set of drawings of the Pantheon occupy one whole wall of a large room, and are sufficient in themselves to make a reputation, and should not be missed by any English architect who can find time for the visit. Merely as examples of architectural drawing of the first order they are worth attention. The drawings are described in the catalogue as "Étude sur le Panthéon de Rome, son état actuel, sa restauration par Septimé Sévère et Caracalla, en l'An 202." There is, of course, a complete set of geometrical drawings of the building as existing, with details of capitals to a large scale, and there is M. Chedanne's idea of the appearance of the building at the close of the second century. His exterior elevation shows the building clothed in an outer skin of perfectly symmetrical jointed and slightly rusticated masonry—the joints just channelled with a shallow sinking; this is intended probably for marble, which we may presume to have been torn off and pillaged, or perhaps to have partially dropped off in the course of centuries, leaving visible the present wall with its constructively rather incomprehensible arches. The upper portion, above the string-course which cuts into the rake of the pediment, is shown with a small order of pilasters; whether any trace of the existence of these has actually been found there is nothing to show. The section of the interior shows the lower stage of the design much as at present, except that a colossal nude figure of Jupiter occupies the space where the altar now stands. In the upper stage M. Chedanne shows an order of pilasters between the square-headed arches, in place of the existing panelling, and the dome is shown completely gilded and with large rosettes in the coffer panels. The most remarkable drawing of the whole is the perspective section showing the construction, which is a marvel of labour and ingenuity in draughtsmanship, and which, after the author's careful studies, and exceptional opportunites of examining the building, we presume may probably be accepted as a correct representation of the facts.

The next largest and most striking set of drawings is that by M. Max Doumic, illustrating a design for "Une Église de Pélerinage." The style is a kind of modernised Byzantine, with a certain degree of Saracenic feeling in some of the details and ornament, notably in the surface decoration of the pediment and upper portion of the west front; a decoration which we may observe is far too large in its parts and quite out of scale with the building generally. The plan is nearly that of a basilica church, only that the arcade stops short of the apse, ending against massive piers, between which and the apse is a square area with a baldachino in the centre of it, supposed no doubt to contain the sacred objects of the pilgrimage. The section shows an enormous half-length figure of Christ in the semi-dome of the apse, as large as can be got into the space, and which inevitably dwarfs the whole building; a figure which is a concession to tradition, rather than to art. The drawings are splendidly executed, and fill a great space on the walls; but one can hardly say that the architectural result is commensurate with the labour bestowed on illustrating it.

We may pass from this to notice some other ecclesiastical designs. Among these is MM. Adrien Rey and Tronchet's set of drawings for a "Projet de Sacristie" for a grand cathedral; obviously an "École" competition design, in a style having some relation to our Jacobean; a semi-Classic work with a strongly-marked cornice and a balustrade with a riot of finials and twirling ornaments on the top of it. The design, very clever and elaborated with the greatest care, seems to show that architectural dignity and reticence are not among the qualities promoted by the École competitions; and one is confirmed in this idea by another study for the same subject by M. Selmersheim, which is in a rather less riotous and (from our point of view) more ecclesiastical style, but is a building we should be very sorry to see executed. A much finer piece of religious architecture is M. Hannotin's "Projet de Couvent dans l'Atlas, pour les Pères Blancs." Externally, this is a stern fortress-like building set on a rock, with one side descending, strongly buttressed, down the slope; the most remarkable drawing is the longitudinal section of the church, in which the author has shown how it is possible to make a mere geometrical section drawing poetically impressive. The drawing shows a dark sombre church lit by small grated windows high up on the walls; three bays of large plain pointed arches with wide piers between; the walls are covered with mosaics on gilt ground, which, however, is treated so as to convey the impression of a dim church in which the mosaic and gilding are half lost and seen in occasional glints. Under or opposite each arch, in the aisle, is seen a sarcophagus with a recumbent figure. The remarkable point about this drawing is that it produces all the effect of a pictorial representation, from the powerful manner in which the light and shadow effect are shown; and the whole is a very fine though gloomy architectural conception.

M. Emile Dupont exhibits a restoration of the church of Santeuil, of which the actual state is not given (an unusual omission in a French set of drawings); it is a plain Romanesque church with an unusual plan; a short choir, a transept without any aisles, and square eastern chapels opening out of the transepts in the angle of transept and choir. M. Henri Deverin shows the actual state and restoration of the church of Airvault, a later church with some interesting details; the architect shows as part of the restoration an immense tower and spire, or the commencement of one, for its full height is too great for any of the sheets to contain it; it must be architecturally much too large for the church, if ever erected. Among designs for modern churches is M. Pérouse de Montclos' "Église avec Presbytère pour le Village de Terre-Basse," a curious design in an exceedingly heavy modern Romanesque style, the low square piers of the nave arcade being actually wider than their height. There is a certain original power about this design; where it fails to an English eye is in the want of refinement in detail. This seems to be the prevailing shortcoming of all modern French design based on Gothic forms of architecture; in the very land and cradle of Gothic architecture the feeling for it seems to have quite gone out; French Classic detail of the present day is generally good, Gothic detail hardly ever. The only other ecclesiastical drawing we need mention is a very remarkable one, such a drawing as one would see nowhere but in a French exhibition; it is a very large construction perspective, showing at once the plan of one side, the section of the other side, and half the exterior façade, of the ancient church of Saint-Nicaise at Reims; the whole in elaborately finished perspective shown with such realistic force that at a little distance it looks almost like a model rather than a drawing. It is the work of M. Lepage, of Reims, and is the property of the

Corporation of that architecturally-renowned city.

As might have been expected, the competition designs for the Opéra Comique occupy some space on the walls. The design by MM. Henry and Massa shows a pleasing quietly-treated Classic façade, one of the best though one of the least pretentious of the designs exhibited. That by MM. C. F. and E. Saint-Père is in the best style of French gingerbread. M. Esnault-Pelterie exhibits a design with a dignified columnar front with good detail, the side elevation too like a warehouse in character, and weighted by a large overhanging corbelled-out turret on each side, continued the whole way up the building from the top of the grand story, with very unhappy effect; owing to the way the corbelling-out is treated, it looks just as if its foundations had been cut away. Most of the designs fail relatively in the treatment of the flank of the building, which is in almost all of them tame and uninteresting, though many of the front façades are well and effectively designed; that by Mr. G. M. L. Morice is one of the best; and another good one is that by MM. Adrien Rey and Tronchet, authors of one of the "Sacristie" designs above mentioned, and who again show themselves in secular architecture far more proficient (from our possibly "insular" point of view) that in ecclesiastical architecture.

A recent competition for the Hôtel de Ville at Ivry also adds its quota to the exhibition. Among these the design by MM. Chaise and Morin-Goustiaux is a good one, that by M. Masson-Detourbet a better, a fine and impressive Classic façade, notable for its breadth and unity of treatment, and the satisfactory manner in which the whole hangs together. Among the other designs for the same building are one or two curious and glaring mistakes in design; a good façade by M. Armand Lequeux is spoiled in effect by the three lumps of pyramidal roof coming down on the cornice, in a row, as if there had been a continuous roof, and two great notches had been cut out of it; and another design by M. E. Delestre, also a very well-designed façade in the main, is all but ruined by the preposterously tall turret rising off the ridge of the roof, and which has an appearance of absolute insecurity, besides being utterly out of proportion; it looks like a flêche run mad.*

Among the various "projets" exhibited is one for a model theatre, said to be "after the indications of Grétry and Wagner," but the latter is not altogether correct, as part of Wagner's principle was to keep the auditorium in a plain and severe style, in order to give the greater effect to the stage scenery. The plan of the auditorium is an ellipse, with a domical ceiling (not a good form for sound), covered by an exterior constructional dome of iron, which is very ugly in its outline and decoration; there are some good points in the planning of the house, but the whole cannot be considered as a model for a theatre. The design by M. Rives for buildings for the 1900 exhibition is of some interest, but is only shown in a rather slight perspective view. The author encloses an immense oblong space parallel with the Seine, with special pavilions at the angles, and a cross centre block from which double wings project each way towards the extremities of the site, leaving a large garden area between them on each side of the centre. The grouping would be dignified externally, but as a form of plan it rather wants concentration, for convenience of circulation. M. Pille exhibits an interesting set of drawings of the "Galerie Dorée" of the Bank of France, a sumptuous room in Louis Quinze style, divided into bays by very large windows the whole height of the room; a number of large-scale detail drawings are also given. With this may be compared the set of drawings shown by MM. Henri Michel and Parmentier, of the "Bibliothéque des Jésuites" at Reims, now the linen-room of the Hospital. This must be regarded we presume as a "restoration" work; it shows, in a fine set of geometrical drawings to rather a small scale, a beautiful long low room with finely-carved pilasters and cove decorations, lighted by tall windows placed in deep recesses, which are also top-lighted. As a library design it is worth study.

Among the designs for public buildings exhibited are some large plans and elevations for schools and buildings of similar type, which are in general very well considered in planning and practical detail, and the designs of nearly all of which illustrate that unfortunate tendency among French architects, fostered no doubt by the wishes of the Government, to give to schools an exterior aspect more suggestive of prisons or hospitals. These designs seem the too appropriate expression of the rigidly laid-down regulations under which French schools are administered. Everything we believe is done to make this class of State buildings in France healthy and convenient for their purpose, but nothing to make them inviting, picturesque, and home-like, as school buildings surely should be. In England it is too frequently found that school buildings are deficient in their sanitary arrangements and planning, but in most cases the buildings are pleasant and inviting in appearance. In France a modern school suggests the idea of a vast education-mill, in which all the scholars are to be ground to the same pattern; and if we have something to learn from the French in the matter of construction, planning, and sanitation of schools, they might certainly take a lesson from us in regard to the architectural designing of schools; since even in our School Board schools, which are built under special regulations as to planning, we have contrived in general to avoid ugliness and a forbidding monotony of treatment. Among the school plans exhibited, that by M. Toudoire of the "Collége des Garçons" at Bône (Algeria) is an example of the method of subdivision employed in laying out the plan: the building, on an irregular site longer at one end than the other, is laid out with long blocks surrounding the site, connected by cross blocks each of which represents one section or division of the school, each having its own courtyard and playground shut in by the cross buildings from connexion with the others; the exterior buildings are mainly for enclosure, and contain open galleries connecting the staircases, which are placed opposite the ends of the cross blocks. One school of somewhat more interesting architectural treatment than the rest is M. Mongenot's "Théâtre et École de Garçons" at Remiremont, in which the front elevation shows the theatre as a wing on one side of the site and the school block balancing it on the other, both being treated so as to balance in general mass and proportions, but the architectural treatment varied so as to give the contrasted expression for the two buildings, which are connected architecturally by a lofty grille forming one side of the quadrangle. In this case the architectural treatment is more interesting and has less of the mill about it than in most of the other school designs.

Among the designs for public buildings which have some special and noticeable character is the design (a "projet" only, we perceive,) by Mr. René Dupard for a "Poste Centrale de Sauvetage," on the coast of Brittany — a kind of "Royal Humane Society's" establishment, in fact — in which the architect has adopted a stern massive style of building which looks specially suitable for a place of refuge on a bleak sea-coast; a short square tower rises from the centre of the building, intended we presume as an observation tower and for sending rockets from; the plan of the building, with a flat side towards the land and an octagon termination towards the sea, increases its bastion-like character. An enormous drawing of a "Projet de Parlement" by M. Belesta has a splendidly-arranged plan, in connexion with which the elevation only shows how little the author has understood how to make the best, architecturally, of the suggestions of his plan. M. Masson-Detourbet's "École Commerciale pour le Chambre de Commerce de Paris," is a long low building with a good deal of character, treated with an order of plain stone pilasters at the principal points, alternating with a smaller order of brick pilasters, on a high surbase between. The cornice wants weight and scale, for the style of building, which otherwise is an original and in its own way an effective one. Another building of some special character is the "École de Commerce et de Tissage," at Lyons, designed by M. Forgeot; a plain stone basement story with pilasters, and brick walls above, and a coloured frieze of floral design, to be executed either in tiles or mosaic. For architectural effect the building, which runs round the angle of a street, wants raising and accentuating at the angle; but in the main it is a very good example of suitable and simple architectural treatment of a utilitarian building. Among the larger designs exhibited are a set of sketch elevations and perspective view by M. Fivaz, for the buildings for the agricultural and industrial exhibition at Constantinople. This is an unusually good exhibition-building design. The general style of the buildings is Turkish; the plan and perspective show a large central group of buildings with a dome, from which a quadrant branches at each side, ending at each extremity with a square pavilion and dome, and opposite and across the ends of each quadrant lies a separate longer pavilion, also with a dome in the centre of its length. The space included within the quadrant arms is laid out as a garden. The whole, as shown in the perspective view, with plenty of coloured material introduced, makes a group of far more architectural beauty than one generally finds in buildings designed for industrial exhibitions.

The few designs for private houses are curiously characteristic of both the strength and the weakness (from the English point of view) of French architecture in regard to modern house design. For anything in the shape of a palace or a mansion, where stateliness is an essential quality, one can always look for fine and effective treatment from French architects, especially in regard to plan and interior effect. These qualities are well illustrated in M. Parent's "Hôtel, No. 28, Quai de Billy." The plan is most effective. The carriage drive from the street into the private courtyard runs across one end of the site, at right-angles to the street; and from the centre of the drive, parallel with the street, a very wide central corridor or hall runs right up the centre of the house, rising by two or three steps half way, and leading to the main staircase at the end, communicating with the two wings of the house. This makes a most stately and effective entrance for a private town mansion where probably large entertainments are to be given, and where plenty of space can be devoted to stateliness of accessories. The front façade, it must be confessed, is somewhat tamely treated, being a great mass of rusticated stonework with simple moulded architraves to the windows, and depending for its effect largely on decorative wrought-iron balcony railings. Still it is dignified, unpretentious, and in good taste. What a contrast when we come to the modern French villa or "picturesque" country house, as exhibited for instance in the design labelled "Un Cottage"; a kind of house which in England would be supposed to be the design of a speculating builder making rather more liberal use of his money than usual

* All the two sets of competition drawings referred to are to be found in the gallery round the central hall. It is of no use to give the numbers, as the French system of cataloguing gives no clue to the order of hanging the drawings. The drawings regarded as the most important are hung in the three separate architectural rooms; the remainder in the gallery

and which seems the very acme of tawdriness. In M. Le Thorel's "Maison de Campagne à Garches," again, we have a house which indicates rusticity by the liberal use of random masonry, and which is not indeed tawdry, but is ugly to such a degree that one wonders how any private owner could condemn himself to live in such a dwelling. Such designs would be absolutely ridiculed in the Architectural Room at the Royal Academy, supposing they could ever have a chance of getting hung there. M. Delma's country house design, "Propriété de M. Eug. G——," is one of the best of its class, and is certainly less obnoxious in taste than most of the others; but we do not think any English architect would like to sign it. It is really a very curious phenomenon that in a country where there is such admirable feeling for architectural dignity in buildings on a large scale, there should be such an utter want of perception of the true meaning of the word "picturesque," a word which, though French in form, seems to represent an idea which at present is absolutely non-existent in France—at least in French architecture.

The exhibition includes some good sets of sketches and studies of existing buildings; among the best are "Études Renaissance" and "Fragment Etrusque," by M. Pontremoli, of the Villa Medicis; the latter, to which no other name is given, is a very curious elevation of a *palazzo* with a Corinthian order in the upper story in which the columns are alternately fluted straight and fluted spirally. M. Tournaire exhibits some drawings of Romanesque church fronts, and a large and very fine elevation of the Palazzo Vecchio at Florence. The late M. Bourmance's sketches from the neighbourhood of Tunis (to which he was sent on a Government "mission") are of considerable interest.

In the middle of one of the rooms is a model of a monument designed by M. Recoura (we know not whether to be executed or not) to the memory of M. Doudart de Lagrée, who was the first discoverer of the remains at Mekong. The monument is in the form of a pagoda in the barbaric Mekong style, with a bust of Lagrée on one face of the base, bas-reliefs on the two others, and on the fourth side the words of the spirited reply which he made to an offer of the Italian Government—"Je préfererais n'avoir point de position et rester pauvre, que de servir l'étranger"; words which represent the French patriotic fervour in its finest aspect, and are worth attention in a country where there seems more and more a tendency to sell everything to the highest bidder, no matter whether it is in the interests of one's own country or not. In another room is a second design for the same monument, in which a stele of more Classic outline, with a globe at the top, forms the main feature, the surface, however, being decorated with flat ornament of a character which suggests the country with which the monument is associated, without breaking the Classic lines of the stele; perhaps a better treatment in an architectural sense.

CITY COMMISSION OF SEWERS.—The chief question discussed at the meeting of this court, which took place at the Guildhall on Tuesday last, was a motion introduced by Mr. H. T. Carpenter for an application to Parliament to erect a crematorium at the cemetery at Ilford. The form of the motion was objected to by several members, who declined to be bound to carry out cremation at Ilford, before the question had been considered by the Sanitary Committee, and in the absence of any recommendation from that Committee. The motion was eventually accepted, with the omission of the words, "and take all necessary steps to carry out cremation," the Sanitary Committee to consider the question, and report before further action is taken.

THE ALBERT PALACE MATERIALS.—As will be seen from an advertisement which appears in this issue, Messrs. Horne, Son, & Eversfield, auctioneers, of Gresham-street, E.C., will sell by auction on the 29th inst., the materials of the Albert Palace and Connaught Hall, Battersea. The sale comprises a large quantity of wrought and cast-iron work, hot-water-piping, glass, flooring, &c.

PORTLAND STONE.*

THE QUARRIES.

IN describing the quarries of Portland we may at once state that it is impossible to refer in detail to the whole of them, for according to our observations there are at least a hundred. A quarry is defined in the island as a separate working, where a crane is established and a "company" of men engaged. In traversing these workings we made notes at certain points, collected samples, &c., from each bed, and all we shall now attempt is to give some account of the same, together with the results of our experiments on the physical and chemical properties of the samples obtained. The numbers of the quarries refer to those on the topographical map (fig. 1).

No. 1.—*Wakeham Quarries, near Easton.*

Whitbed ..... 5 ft. 6 in.
Basebed (two beds) 5 ft. 6 in. and 2 ft. 6 in.

No 2.—*Bill Quarries, Portland Bill.*

Roach (three beds) ..... 6 ft.
Whitbed..... 8 ft. 6 in.

The upper part of the Roach is much broken up. The shelly matter in the Whitbed is rather larger than in the average from that horizon, causing the material to be slightly coarser; but it is a durable stone. The Portland Bill itself forms an interesting study for the architectural student as it exhibits a fine section of the building stone beds from the Cap and Rubble to the Flinty series.

No. 3.—*Quarries at Weston.*

These give a normal section of the various beds, which we may profitably illustrate (fig. 5).

FIG. 5.

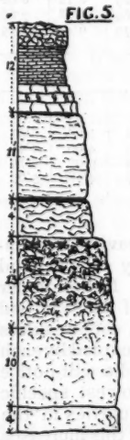


FIG. 5.—*Vertical Section of Quarries at Weston.*

No. 4.—*Waycroft Quarries.*

These are long and sinuous, and we took sections at two points (*a* and *b*) as follows (omitting overburden):—

Point *a*—Roach 4 ft.; Whitbed 7 ft.
Point *b*—Roach (upper bed) 4 ft.
Whitbed (in three beds), separated by lines of flints—7 ft. 6 in., 2 ft., and 2 ft.
One bed. { Curf 3 ft. 6 in.; Roach (lower bed) 9 in. / Basebed 6 ft.

In this quarry a large joint several inches in width runs from Cap to Basebed. The division between the Roach (upper) and Whitbed is sharply defined, the former being white and the latter grey on weathered surfaces.

No. 5.—*Maggott Quarries.*

Section essentially the same as at last quarries, point *a*.

No. 6.—*Grove Quarries.*

These are mostly worked by convicts, and the stone has been very extensively employed in the construction of Portland Breakwater, &c. A glance is sufficient to show that these Government quarries are worked on a different principle to those belonging to private firms. The rubble and overburden, instead of being thrown behind as the face advances, is taken away some distance and mostly utilised. Consequently there is a vast clearing, which is kept in excellent order. Quarries worked by free men are intermingled with those exploited by the prisoners.

No. 7.—*Kingsbarrow Quarries.*

A very large quantity of overburden has been removed in some parts of these quarries, and we anticipate an enormous production of stone at this point for some years to come. The section was as follows (fig. 6):—

FIG. 6.

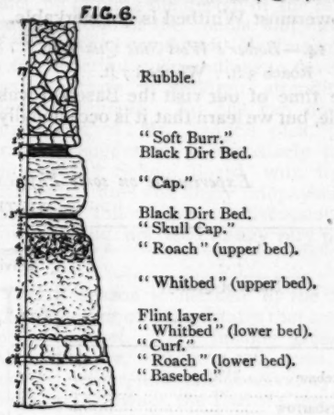


FIG. 6.—*Vertical Section of Kingsbarrow Quarries.*

It will be observed that the Whitbed contains two bands of flints, and that between it and the Basebed, Curf and a lower bed of Roach are developed.

No. 8.—*Inmosthay Quarries.*

A large number of quarries are situated in this district. One gave us the following section of the workable beds:—

One bed. { Roach (upper bed), 4 ft. / Whitbed (in three divisions, separated by lines of flints), 4 ft., 3 ft. 6 in., and 3 ft. 6 in.
Stone much broken up by flint, 2 ft.
One bed. { Curf, 3 ft.; Roach (lower bed), 9 in. / Basebed, 8 ft.

No. 9.—*Inmosthay East Quarries.*

Roach (upper bed), 6 ft.
Whitbed, much broken up, stone rather coarse (in four beds), total 12 ft.
One bed. { Curf, 3 ft.; Roach (lower bed), 6 in. / Basebed, 7 ft.

The Whitbed here does not seem to furnish quite the usual class of stone; the Basebed, however, is normal.

No. 10.—*Inmosthay Lower Quarries.*

One bed. { Roach (upper bed), 3 ft. 6 in. / Whitbed (in two divisions, separated by a band of flints), 7 ft. and 2 ft. 6 in.
Curf, 3 ft. 6 in.; Roach (lower bed), 1 ft.
Basebed, 7 ft.

No. 11.—*Perry Quarries, Wakeham.*

In this neighbourhood there are several workings. The Perry quarries are quite close to Bow and Arrow Castle. We took measurements at two points (*a* and *b*), some 200 yds. apart.

	Point *a*.		Point *b*.	
	ft.	in.	ft.	in.
Roach	2	9	3	0
Whitbed (upper).....	8	6	9	0
,, (lower).....	4	0	4	0

The Basebed is not worked in these quarries. At point *a* an enormous "gully" runs through the stone, at least 3 ft. in width, the sides of which are lined with aragonite and drooping stalactites. As will be observed, the Whitbed here is very thick, and, we may add, the vertical joints are far apart, yielding stones up to 15 ft. or 16 ft. in length—probably the largest blocks in the island. It would appear also that where the "gullies" are large the blocks are generally very sound.

Descending now to the beach near the castle we have an excellent opportunity of examining the Flinty series of the Portlandian, on the way down. At this place also some fine views of a landslip are obtained.

No. 12.—*Toutfield Quarries, near Yeales.*

Roach, 3 ft. 9 in.
Whitbed (in three divisions, separated by bands of flint), 2 ft. 9 in., 5 ft., and 2 ft. 6 in.
Curf, 4 ft.
Basebed, 7 ft.

* Concluded from last week.

The lowermost division of the Whitbed is not workable here; and it will be noticed that no lower bed of Roach exists. Other quarries are in the immediate vicinity.

No. 13.—*Tout Quarries, near Yeales.*

These are situated near the edge of the cliff.

Roach, 4 ft.
Whitbed (in two beds), 7 ft. 6 in., and 6 ft.
Curf, 4 ft.
Basebed, 6 ft. 6 in.

The lowermost Whitbed is not workable.

No. 14.—*Bower's West Side Quarries.*

Roach 5 ft.; Whitbed 7 ft.

At the time of our visit the Basebed was not visible, but we learn that it is occasionally worked.

Experiments on some Physical Properties of Portland Stone.

WHITBED.

No.	Name of Quarry.	Specific gravity.		Weight per cubic ft.		Absorption of water per cent.				
		True.	Particles.	Dry.	Wet.	1 sec.	1 min.	30 min.	1 day.	1 week.
				lbs.	lbs.					
1	Wakeham	2·17	2·58	135·4	161·0	·80	2·94	5·61	6·68	7·21
2	Bill	2·33	2·59	145·4	161·6	·75	1·70	2·84	3·99	4·36
7	Kingsbarrow	2·16	2·57	134·8	160·4	2·22	5·67	5·67	5·92	7·40
10	Inmosthay Lower	2·16	2·59	134·8	161·6	1·33	3·74	5·88	6·41	7·75
11	Perry	2·30	2·58	143·5	161·0	1·60	3·21	4·13	4·59	4·82
11	Perry	2·22	2·60	138·5	162·2	1·43	4·01	5·15	5·44	6·59
12	Toutfield	2·13	2·62	132·9	163·5	2·41	5·89	6·70	7·50	8·84
13	Tout	2·12	2·56	132·3	159·7	3·30	5·85	6·10	6·36	8·14
14	West Side	2·17	2·54	135·4	158·5	3·30	5·99	5·99	6·40	6·81

BASEBED.

1	Wakeham	2·20	2·62	137·3	163·5	1·50	4·26	5·51	6·01	7·26
3	Weston	2·09	2·59	130·4	161·6	2·48	6·96	7·21	7·71	9·20
4	Waycroft	1·85	2·61	115·4	162·9	4·50	10·61	12·86	13·50	15·75
7	Kingsbarrow	2·11	2·60	131·7	162·2	1·74	4·73	7·48	7·98	8·97
9	Inmosthay East	2·13	2·62	132·9	163·5	1·72	3·69	6·89	8·12	8·62
10	Inmosthay Lower	2·16	2·60	134·8	162·2	1·47	3·43	5·89	6·38	7·86
12	Toutfield	2·17	2·60	135·4	162·2	1·37	3·43	5·72	6·40	7·55

OTHER BEDS.

1	Wakeham (Cap)	2·63	2·67	164·1	166·6	—	—	·10	·33	·53
1	,, (Skull Cap)	2·22	2·53	138·5	157·9	1·32	4·42	4·64	5·08	5·53
4	Waycroft (Roach)	2·31	2·59	144·1	161·6	·66	1·55	3·33	4·00	4·44
4	,, (Curf)	2·09	2·63	130·4	164·1	2·34	6·71	8·38	9·06	9·73
12	Toutfield (Roach)	2·15	2·45	134·2	152·9	·68	1·37	2·96	4·78	5·69

Summarising the thickness of the beds in the Portland quarries, it appears that the thickest Whitbed, 10 ft., is found at Weston (No. 3); whilst the thickest Basebed is at Inmosthay (No. 8), where it is 8 ft. Beds from 7 ft. to 9 ft. are found at several places. The Roach is almost everywhere a massive bed.

Waycroft and Kingsbarrow are the original stone quarrying districts. The old "Bird's eye" Portland stone is not now obtainable, the quarries being worked out. This was raised at the northern end of the West Cliff, and the workings were known as Gosling's quarries. We ascertained also that the stone on the East Cliff is not now in the market, the reason being, we were informed, that it is so hard, and not economical in masoning. This seems to have some connexion with an observation in the "Guide to the Museum of Practical Geology" 4th ed. (p. 38) to the effect that "the quarries from which Sir Christopher Wren obtained the Portland stone which he employed, have long been deserted, the only reason assigned being that the merchants find they cannot sell that stone on account of its being a little harder, and thereby more expensive to work." If this is actually the case it clearly shows the unwholesomeness of modern competition. We may remark, however, that the Perry quarries (No. 11) and others in the immediate vicinity are not far from the East Cliff.

PHYSICAL PROPERTIES.

During our examination of the Portland quarries we collected 33 samples of stone. From these we have taken at random 21 specimens for testing certain physical properties of the material after the manner detailed in the articles now appearing in our "Student's Column." These are all representative samples detached *in situ* under our own eyes and labelled on the spot. It is believed that the experiments are sufficiently numerous to warrant us in drawing up a general estimate of the relative value of the different kinds of Portland stone as a whole, and some of the conclusions arrived at are interesting and novel.

The following table gives the specific gravity of each stone tested, both in bulk and component particles; the weight per cubic foot when dry and when thoroughly saturated with water; also absorption per cent. of dry weight for periods from one second to one week. We attach considerable importance to the absorption experiments. The results of all samples dealt with are recorded, that is to say, they are not selected from a number to favour any particular theory:—

Dealing first with specific gravity, we discover a very peculiar property of Portland stone not hitherto recognised. If the reader plots the true specific gravity of the Whitbed on a map of the island, so that each result is placed in the relative position occupied by each quarry referred to by number, he will notice that the Whitbed, having the lowest specific gravity (2·12), is found in the quarries in the north-west (viz., Tout), and that this increases in a south-easterly direction progressively—2·13, 2·16, 2·17, 2·22, until we arrive at the Perry quarries, where it reaches 2·30, the highest recorded specific gravity being at the Bill quarries, 2·33. In other words, the Whitbed when dry, in the north-west of the island, is lighter in weight (132·3 lbs. per cubic foot) than elsewhere, and it gets gradually heavier on proceeding in a south-easterly direction, the heaviest recorded weight being from the Bill quarries, 145·4 lbs. per cubic foot, at the southernmost extremity of Portland. Our experiments are too limited to enable us to state what change takes place in regard to the specific gravity of the stone in going from the east to the west of the island, but, speaking generally, the Whitbed on the eastern side is heavier than that on the western. The specific gravity of the Basebed is not so marked. It is higher (2·20) in the quarries in the centre of the island than elsewhere, and lowest (1·85) in those to the north-east. The average weight of the Basebed is less than that of the Whitbed—ranging from 115·4 to 137·3 lbs. per cubic foot. The specific gravity of the Roach, as far as we can show it, is 2·15 and 2·31, the heaviest Portland stone being the Cap (2·63), weighing 164·1 lbs. per cubic foot when dry.

The results of the absorption of water tests, so far as the Whitbed is concerned, are very instructive. We learn that the stone absorbing the most water in one week (8·84 p.c.) is situated in the north-west of the island, and in a measure the Whitbed becomes less absorptive as it recedes from that point in a south-easterly direction, coming down to 4·82 p.c. at Perry quarries, and 4·36 p.c. at the Bill. Thus we discover a close analogy between specific gravity and absorption, in the Whitbed; where the former is high the latter is low, and *vice versâ*. The Basebed in the north-east of the island seems to be very absorptive, taking in as much as 15·75 per cent. of its bulk, in one quarry; this property also roughly follows the specific gravity results, in that where the Basebed is heaviest (Wakeham quarries) the amount of water absorbed is the least. The "time absorption" experiments give a good idea of the rapidity with which the various materials imbibe water—useful in connexion with the subject of dry walls.

The crushing weight of Portland stone has been ascertained on several occasions, and we have nothing new to offer on that head, though a series of experiments on the stone as now sent to the market is badly wanted. The majority of the results are very old, and refer to stone long since worked out. In the experiments carried out by the Institute, and recorded in the sessional papers for 1864, the mean resistance to crushing per square inch arrived at was, for 2-in. cubes, 2,576 lbs.; for 4-in. cubes, 4,099 lbs.; and for 6-in. cubes, 4,300 lbs. Rennie gives 3,729 lbs. per square inch; Barlow from 1,384 lbs. to 4,000 lbs. per square inch; Unwin, 299·95 tons to 516·38 tons per square foot (4-in. cubes); and Beare, for Whitbed, 173·5 tons to 229·0 tons per square foot, and for Basebed, 240·6 tons to 324·4 tons per square foot for the stone from one quarry, and 133·4 tons to 159·5 tons per square foot for that from another. Professor Beare's recorded strength of the Basebed—the first-mentioned result especially—must have been derived from very abnormal specimens, or the effects are inexplicable. There can be no doubt that the Whitbed is, on the whole, stronger than the Basebed. The Roach has been tested for fortification purposes by being fired at by heavy guns, when it stood the shock better even than blocks of Cornish granite.

CHEMICAL PROPERTIES.

Chemical analyses of various Portland stones show them to consist almost entirely of carbonate of lime, plus a little magnesia, silica, iron, &c. To be more precise we may give the following results:—(*a*) By Professors Daniell and Wheatstone; and (*b*) by Messrs. Ransome and Cooper, the latter referring to stone from the old Grove quarries.

	a.	*b.*
Carbonate of lime	95·16	96·18
,, magnesia	1·20	1·05
,, soda	—	·56
Peroxide of iron, Alumina	0·50	·30, ·07
Silica	1·20	·94
Phosphoric acid	—	trace
Bitumen	trace	—
Water, &c.	1·94	·60

Messrs. Ransome and Cooper remark that the stone is readily decomposed by hydrochloric acid, the undissolved part consisting of silica in fine white grains. This analysis evidently refers to the Whitbed. From the general micro-structure of the latter, referred to, *ante*, p. 295, it is clear that a great part of the silica exists as quartzose sand grains, but partially also as the matrix when this is present.

WEATHERING PROPERTIES.

From the results of our experiments on the physical properties of the various Portland stones, it will be gathered that they must vary much in quality. Some of them, no doubt, are amongst the most durable freestones in the market, but others are by no means as satisfactory. We do not care to allude to each stone in detail under this heading, but the reader will probably be able to estimate its true value from what has already been said. Speaking generally, the

Whitbed is more durable than the Basebed, though from the nature of the latter in regard to facility of tooling, large quantities are sold. At the same time, we feel sure from the inferiority of the Whitbed in certain parts of the island, and to which we have not alluded in such strong terms as we should have liked to have done, that the better kinds of Basebed are superior to it in those localities but nowhere else. Where the stone becomes flinty it seems to weather very unequally. In large cities, Portland stone may generally be detected by the blanched appearance it presents on the weather side of a building. In some instances it is absolutely ghastly, and quite unfit for certain styles of architecture. Its grey tones when fresh, however, and the fact that, as a rule, it is much more durable than some other largely-used freestones we could name, will always cause it to be extensively employed, and rightly so. Large quantities of Roach are thrown away as rubbish; it is, however, a very durable stone, and for certain kinds of bold work the less vesicular classes could be used to advantage.

In certain localities, Portland stone becomes covered with lichens, &c., which feature has caused a lively discussion in our columns on at least one occasion, as to whether this promotes decay, or is indicative of superior durability. For our own part we do not think the time has yet arrived when this question can be clearly decided. On the one hand, it may be argued that if the stone "vegetates" it shows that its surface cannot be disintegrating very rapidly, or, it would be removed before the lichens had time to take root. On the other, it may be contended that unless the surface does decompose there would be no encouragement to successful rooting, whilst the presence of vegetation must tend to keep the surface of the stone moist, and thus give more time for the operation of acids in attacking the carbonate of lime and perishing the material. Moreover, we know that some of the most powerful acids in existence, capable of doing this work, are derived from the decomposition of mosses and lichens. From our own observations we are able to state that certain lichens have an affinity for certain kinds of stone, and before the question can be fully resolved we must know which of these plants give rise to deleterious crenic and apocrenic acids, and which do not do so—for this has never been ascertained. An inquiry into the subject could not fail to shed considerable light on some of the more obscure problems connected with weathering, and in no case, possibly, would such an investigation prove more useful than in regard to the different varieties of Portland stone.

NOTES.

IT would be interesting to know what the English delegates, who attended the International Miners' Congress at Berlin last week, think of the opinion of M. Lamendin, who presided at the concluding sitting, and still more interesting to have the views of the British miners generally upon the French delegates' utterances. It is well known that the "friction" which invariably occurs at these gatherings was very pronounced on this occasion. Mr. Burt, it is true, makes light of it, and says that this somewhat unpleasant state of affairs is merely due to "inevitable misunderstandings," consequent upon so many different languages being spoken, and to the methods of procedure differing from those to which many of the delegates are accustomed. M. Lamendin, however, declared that the English always secured victory for their views, as they formed a majority; but that they were absolutely indifferent to the miseries of the miners on the Continent, because they did not experience them themselves. The economic conditions under which they lived were infinitely better than those affecting the other nationalities represented at the Congress, and they congratulated themselves on their own position, and said, "We are comfortable." This really presents a very striking contrast to what the English miner was actually saying but a few short months ago. Certainly the German and Belgian representatives had just described the "miserable condition" of their working miners, while a delegate from Austria had declared that it was better to fight than to starve, and the British M.P.'s and others present could hardly follow in that strain. It is true, also, that some of the propositions which the English delegates declined to support were in the direction of uncompromising Socialism; but one would think that they could not fail to perceive that their lot is really incomparably better than that of the men into whose hands they drove much of our coal business last year. The American miners are pursuing a similar suicidal policy just now, and the result will not improbably be disastrous to American industry generally.

THE managers of the London Board Schools have done good service by again calling attention to the subject of defective eyesight among the children of the Metropolis. We do not desire to touch on these remarks in regard to such points as the effect of needlework on eyesight; but the managers make some observations on the lighting of school-rooms, and they say "the gas-lighting is insufficient in many class-rooms, three gas-burners in a central pendant being all that is provided." They suggest that there should be supplementary light from wall-brackets, and that the matter requires further attention. What is needed is a general investigation by competent persons into the lighting of the elementary schools all over the kingdom. Many of the paupers in the workhouses of England are there because from some physical defect, such as bad sight, they cannot earn their bread, and therefore sound eyes are not less important than sound education. To have sound eyes children must be educated in properly-lighted rooms, and we have no hesitation in saying that a large proportion of the schools of the country are defective in this respect. This remark is not confined to elementary schools: it applies equally to the public and private schools of a higher grade. The Education Department is responsible in the case of the elementary schools, and it is to be regretted that some Government supervision cannot take place of the sanitation and lighting of the higher schools.

MR. SELWYN IMAGE, in delivering a lecture on "Decorative Art in connexion with Elementary Education," before the Applied Art Section of the Society of Arts on Tuesday evening last, treated his subject generally rather than particularly. Though we thoroughly agree with his ideas and his means of disseminating them, there appears to be little probability of these views becoming immediately paramount, owing to the huge weight of apathy and ignorance with which the subject is regarded by the majority of the public. Mr. Image touched upon the great advantage to the community that would follow greater attention to decorative art, and the difficulty in arousing public opinion to the advantage of a training in line, colour, proportion, and the other principles of decorative art, and its cheering effect upon the life of those who are now surrounded with depressing ugliness. Bad ornament, which too often covers bad workmanship, on all sides exerts its influence to deaden the art instincts of the people, which, almost extinct at the present time, in the past flourished and pervaded both country and town life on all sides. The influence of surroundings was also dealt with by Mr. Image, who emphasised the importance of the cultivation of character, manners, breeding, taste, and an education lying beyond the acquisition of bare facts, which characterises the education of the present-day Board Schools. Mr. Image's claim for more culture of the æsthetic sense, which exists in most children, though often in an entirely undeveloped state, should have wide symathy. The means suggested by the lecturer referred almost entirely to the school buildings, and included a scheme for making not only the buildings architecturally beautiful without, but for increasing the beauty of the interiors of the class-rooms and assembly halls, by refining the design of the furniture, the decoration of the rooms, and the details of cornices and woodwork. Mr. Image's claim is for beautiful surroundings to develop the æsthetic taste in children attending elementary schools. No one can doubt the importance of Mr. Image's plea, but the practical suggestion is not likely to much impress the School Board, with its ever-increasing rates and angry ratepayers. The paper was followed by a discussion which, however, did not lead to any very practical suggestions.

THIS season is marked by the unusual number of large estates that are placed in the market. They include Dunecht, in Aberdeenshire, nearly 9,000 acres, famed for its timber, and the observatory erected there by the owner, the Earl of Crawford and Balcarres, hereditary chief of the ancient house of Lindsay: Heaton Park, the Earl of Wilton's seat near Manchester—its park, four miles in circumference, formerly known as the "Northern Goodwood," and its mansion, of white freestone, designed by James Wyatt, in 1772, for Sir Thomas Egerton, Bart., first Earl of Wilton. The view of the south front, in Neale's "Seats," shows a two-storied building having a semi-circular centre connected by corridors to two octagonal wings, the frieze of the central portion resting upon four Ionic columns, and crowned with a dome; the north front is more decorated, bearing a pediment carried by four Composite columns; in the ground floor are Venetian windows. This property belonged to the Hollands, *temp.* Anne. Elizabeth Holland brought it in marriage to Sir John Egerton, Bart., whose mother Bridget was sister and sole heir of Thomas (Grey), last Lord Grey de Wilton of that line, who died in the Tower, 1614. Gog-Magog Hills, the Duke of Leeds's seat in Cambridgeshire, originally a hunting-box, with training stables, of Lord Godolphin, is another which is to be sold; the house stands within the lines of Vandlebury, a Roman or British earthwork, one of the chain of forts that stretched from the Hunting Tower, by Audley End, in the Essex woodlands, to the Wicken and Upware fens at the north end of the Devil's Ditch.* Other forts on the chain were at Littlebury and the walled town of Chesterford; to Vandlebury on the chalk range succeeded Grantaceaster, next stood Arbury. The Gog-Magogs are the pleasant hills of Balsham, in Henry of Huntingdon's phrase. If it be true, as Lysons says in his "Cambridgeshire," that Lord Godolphin destroyed a great part of the fort, which covered 13 acres, for his garden, there would seem some reason for associating the spot with the Vandals. Then we have Pishiobury, Hertfordshire, where, in 1782-4, James Wyatt designed the house for Jeremiah Milles, on the site of one built for Sir Walter Mildmay, and, *teste* Walpole's "Anecdotes of Painting," designed for him by Inigo Jones. The house, of three stories, has a central pediment, which, with the wings, is embattled—see the plate in Neale's "Seats." This property belonged to the de Mandevilles, Earls of Essex, in the eleventh century, and is separated from that county by the Stort. It subsequently passed to the Fitzgeralds, and from them to the Scroopes

* The Ditch crosses Newmarket Heath, where it gives name to a spot well known to racing men; parallel with it lies a similar vallum, now called Fleam Dyke, where grows the *anemone pulsatilla*, or purple pasque-flower, which is found, they say, only where Danes' blood has been shed.

of Bolton. Queen Elizabeth bestowed it upon Walter Mildmay, whose son, Thomas, sold it to Sir Lionel Cranfield (1612), afterwards Earl of Middlesex; it has passed through many hands since, belonging at one time to Lord Goran. John Bacon carved a mantelpiece for the drawing-room here.

AT the meeting of the Egypt Exploration Fund on Wednesday, Sir John Fowler, who occupied the chair, whilst apparently condemning entirely the idea of submerging the Island of Philæ, on the other hand strongly supported what seems to us the preposterous notion of raising the island bodily. We call it preposterous, because we do not believe that any such thing can be done for any sum which is at all likely to be raised for it. Moreover, if done, it would still be an entire alteration of the site, and that it could be done without injury to any of the monuments we should think most improbable. Our own impression is that the proposal has never been intended seriously, but that it is a kind of blind to pacify that part of the public who are adverse to the destruction of Philæ, by a vague promise of a measure which is to satisfy both parties and allay opposition for the time.

IN the *Times* of Saturday last was an article on "the disfigurement of Edinburgh," in which we heartily sympathise, calling attention in strong terms to the proposal to allow the North British Railway Company to build an enormous hotel on a site on the south side of Princes-street, between the North Bridge and Waverley Market, which is to be carried to the height of 80 ft. to the ceiling of the topmost room, and of course the roofs will rise considerably above this. The building height, generally, in Princes-street is restricted to 60 ft., so that such a building would be a complete monstrosity in relation to its surroundings, both in size and no doubt in style, for we all know what the railway hotel style is usually like. Edinburgh is a town so exceptional in its natural beauty of site, and which has on the whole been so little spoiled, that any proposal to injure the general aspect of its finest street is a matter of interest not only to the Edinburgh public but to the country at large. As the writer in the *Times* puts it, the mere fact that a railway company wish to turn hotelkeepers and to have as many rooms to let as possible on a given site, is surely no reason why they should be allowed, for the sake of their own pockets, to spoil one of the finest pieces of city scenery in the world. It is somewhat a novelty to find the *Times* so earnest on a question of this kind; but better late than never.

IT is a significant sign of what we are to expect from the London water companies, which have shown every tendency to become more exacting since the unfortunate Report of the Royal Commission, that the Lambeth Water Company, under cover of a recent extraordinary judgment of Mr. Justice Chitty, are now taking up the position that water supply for a standing bath is not within the definition of "domestic supply," and are proceeding to cut off the water from premises where the owners have refused to pay the extra charge. It is difficult to know whether to feel more indignant against a water company which sets up such a claim, or against the law which supports it. At a time when the value and even necessity to health of copious ablution is becoming more and more widely recognised, and a bath-room is coming to be regarded rightly as a necessary adjunct even to a small dwelling house, the proposal to remove this from the category of "domestic water-supply" and hamper the use of it by a special charge, is one of the most monstrous proceedings we have heard of even in the annals of the London water companies. From a case which was brought into the Lambeth police-court last week it appears that the Lambeth Company have in a good many instances cut off the whole supply of water from houses when the tenant refused to pay the extra charge for having a bath. How long is this kind of tyranny over the public to go on? Such a state of things in a city like London is perfectly disgraceful.

IT is understood that the rector and churchwardens of St. George's, Hanover-square, with the concurrence of the Vestry, intend to apply for a faculty to make alterations in the church's interior, after plans already prepared by Sir Arthur Blomfield. These extend to a reseating of the church, the enlargement of the organ, and removal of a gallery, at an estimated cost of 3,000*l.* This church, often ascribed to Gibbs, was designed by James, and completed in 1724 for a parish, since divided, taken out of that of St. Martin-in-the-Fields. The interior was redecorated, and the lower windows enlarged, in 1871, by Mr. B. B. Sapwell, under the direction of Mr. B. Ferrey; Mackeson's "Guide" says that the organ, by Snetzler (1761), was rebuilt in 1864 by Hill. Hanover-square was plotted in 1717; eight years afterwards Sir Richard Grosvenor met his tenants and lessees in order to choose names for the streets and squares that had been laid out around Grosvenor-square. Many writers extol the view looking down George-street from Hanover-square; the houses, with their high and narrow windows, have elevations that are more like those of Italian cities than our own; Brown, in his "Domestic Architecture," directs attention to the beautiful brickwork of the house, a home of the Lords Palmerston, in the south-west angle of the square. In the church were married Sir W. Hamilton and Emma Harte, Lola Montes and Mr. Heald; on July 12, 1772, by licence, Thomas Holcroft, of St. Clement Danes, and Hannah Beck*, the twelfth Earl of Derby and Eliza Farren, his second wife; and, on October 6, 1809, William Meeten to Lydia White, the celebrated "Bluestocking." Five years ago the St. George's parochial ground, a strip of one-and-a-half acres lying between Mount-street and South-street, Mayfair, was thrown open for public recreation and enjoyment. A few days ago the Chancellor of London, sitting in the Consistory Court, assented to the granting of a faculty, under certain conditions, for the laying-out and general repair of a long-neglected graveyard, belonging also to this parish, situated on the north side of the Bayswater-road; see our columns of September 9, 1865. It extends over about five acres, and was formed, in 1764, by the then Tolmin's Farm. Here is the supposed grave of Sterne, to which we adverted in a "Note" on September 16 last year. The chapel has been lately rebuilt after the plans and designs of Mr. Herbert P. Horne, architect. The computed cost of this improvement will amount to 2,400*l.*, and it is expected that as many as 2,000 tombstones, Sterne's excepted, will be shifted.

THE summer exhibition at the Grafton Gallery under the title of "Fair Women," does not profess in the *apologia* of the directors to be an exhibition of portraits of "Fair Women" only. The title, therefore, may be dismissed as no more than an attractive bait to the Philistine, and setting this aside, we have an interesting and instructive collection of pictures, which, as illustrating portrait painting of different epochs and various schools from the Greco-Roman work of the second century to the present day possesses a distinctly educational value. To the artist and the art-lover the gathering together from many private galleries of examples of most of the great masters of portraiture, from Holbein and Botticelli through Rubens, Rembrandt, Kneller, Van Dyck, Lely, and others to the eighteenth century masters and down to living painters, affords an opportunity of comparison which only considerable pains would otherwise render possible. To the Philistine, for whose shillings the organisers have displayed a shrewd commercial instinct, the exhibition of the counterfeit presentments of many notable women, of whom he has heard or read, some "possibly more celebrated for their historical interest, their influence, or their wit, than for their beauty," must prove an attraction, enhanced by the scraps of historical information with which the catalogue is garnished. A great part of the exhibition is, indeed, of literary rather than artistic interest, wherein is shown the financial acumen of the promoters, who have clearly felt themselves in no way bound to restrict their show by considerations of beauty in the subject, or of excellence in the craftsmanship of the pictures they have collected. Thus we find a considerable amount of dross in which the gems of the collection are encased. To the amateur of what, in popular estimation, are esteemed minor arts in comparison with picture painting, a genuine treat is afforded by the fine collection of miniatures, in which is included not only the work of men like Cosway and the Plimers, but of many lesser-known lights. Nor are the remarkable examples of fans contributed by the Marchioness of Bristol and others, or the capital specimens of various types of lace, from the stores of Mrs. Alfred Morrison and other collectors to be ignored, even although the cloven hoof of Commerce appears in the emphasis laid on the fact that one particular fan, a Japanese example of lacquer on ivory, has "only three others like it in the world, two of which are in the possession of the Mikado." Other instances of *bric-à-brac* in various items in the appanage of "Fair Women" are not without interest, either artistic or literary.

THE Carpeaux Exhibition at the École des Beaux-Arts is a little disappointing. One expected to see a considerable collection of the sculptures or models of one of the most gifted French sculptors of the modern period; whereas the proportion of casts is rather small and does not include any of Carpeaux' most celebrated works, and the numerous sketches and studies in pen, pencil, and colour are really too slight to have much interest, except that kind of interest which attaches to all autographs of an eminent artist. The colour sketches of some court functions during the Second Empire, from which a good deal was expected, are after all few and very rough—what French painters call "pochades"—mere rapid smudges to form a memorandum of an effect or an incident. There are some similar and larger sketches in oil of incidents in the siege of Paris, which are of interest as the impressions of an eye-witness at the moment. Among the casts are some small studies for the celebrated group of "The Dance," and two or three figures and ideal busts which illustrate Carpeaux' peculiar power of giving animated expression to sculpture, which he perhaps sometimes carried too far. The exhibition is one for artists who are visiting Paris just now to look in at, only they must not expect too much from it.

AMONG lesser exhibitions now open are two large pictures — both sacred subjects—on view at the Fine Art Society's Galleries. "Peace, be Still," by D. A. Wehrschmidt, and "Passing to Eternity," by A. E. Emslie. In colour they are in strong contrast, the former being very strong, the latter somewhat delicate in tone. Mr. Wehrschmidt, if he cannot be credited with a happy composition or a novelty in subject, has produced a picture which, no doubt, will appeal to many, and may prove, as many pictures do, more successful in mezzotint than in the original. Mr. Emslie's work is more elaborate in idea, and contains a large number of well-modelled figures. This also is to be reproduced by the Fine-Art Society.

* Holcroft died, 1809, in Clipstone-street, and was buried in the Paddington-street ground; two and three-quarter acres, opened in July, 1886, at the joint expense of the Marylebone Vestry and the Metropolitan Public Gardens Association.

MR. HAMILTON AIDÉ'S water-colours at Messrs. Goupil's hardly, we think, merit the importance given to them as a "one man" exhibition. We cannot compliment him on his architecture or his colour in many instances, although the effect of atmosphere is well given in some of the pictures—notably in Nos. 7 and 12, two sketches in Cairo. Perhaps the best bit of colour and draughtsmanship is in No. 5, the Ruins of the Venetian Arsenal, Corfù. Many of the sketches are mere notes made during the course of much travel, and no doubt interesting to the traveller, but hardly of sufficient value to be placed in a public exhibition. The show would have been better if at least half of the pictures had been eliminated.

THERE seems to be some need for the schoolmaster to be more abroad among architects and surveyors. Deficiencies in grammatical construction (very frequent) are not peculiar to the writing of architects; many popular novelists can give them points in this respect. But one does rather expect professional men to know how to spell. A Surveyor to a Local Board writing about the good preservation of some work that "remains in tacked"; an architect in large practice writing "centuary" for "century"; another architect, of rather exceptional ability, calling attention in a competition report to the "symetry" of his design: these are surely indications that the Institute of Architects was not far wrong in establishing a general education test in its examination curriculum.

ARCHITECTURE AT THE ROYAL ACADEMY.—III.

AT the north end of the gallery are grouped several important drawings of church work. Mr. Brewer's drawing of "The High Altar, Moosburg, Bavaria" (1,553) is a fine perspective sketch of a very elaborate piece of Late German Gothic, a shrine, rising into a forest of pinnacles and statues, standing on a narrow base corbelled out at the sides. Some of the detail is of course not in pure taste (from our English Gothic point of view), but the whole is a work well worth special illustration. Next to this is Mr. G. H. Fellowes Prynne's perspective view from the north end of his remarkable church of All Saints, Dulwich (1,558), a drawing which was illustrated in our pages under date July 29, 1893; and which we have before commented on. It is a fine example of picturesque grouping arising naturally out of the special treatment of the plan. The interior of the "New Church of St. George, Worcester" (1,554), by Mr. Aston Webb, is shown in a cleanly-drawn pen perspective, giving the view of the chancel. It is a design mainly in Late Gothic style, but with some special character in the window tracery and other details. There is no chancel arch, the chancel is marked off by a battlemented rood-beam across the opening, with a kind of carved wreath of oval shape formed between the beam and the ceiling, within which are a cross and two figures of saints; we do not quite make out the detail of this "wreath," which seems to include some symbolic ornament; it looks a little heavy for its position. The chancel railing is a characteristic piece of design, consisting of a wrought-iron railing of much more Classic than Gothic appearance, supported by stone piers of simple but original design. The small plan added indicates a powerful and effective treatment of the west end, with the west window placed within what will evidently be a very deeply-recessed arch formed between the projection of the side porches. Below are hung two plain and business-like geometrical drawings of the east and west ends of Messrs. Brooks & Son's "Church of the Good Shepherd, Gospel Oak" (1,555, 1,556), examples of their well-known style of solid Gothic building, in which effect is sought for by the treatment of lines and masses rather than by ornamental detail. The treatment of the east end is rather peculiar, the lower portion having three separate lancet windows divided by substantial piers, the upper portion a grouped window of five lancet lights: a little too much repetition of the same form. The authors are to be commended for sending geometrical elevations, but we wish they would set a still better example by adding plans to them.

"P. & O. Offices, Leadenhall-street" (1,557), by Mr. Collcutt, is an admirable specimen of geometrical drawing, illustrating an equally admirable piece of modern street architecture in a very refined style. It is more Classic than anything else in feeling, but is quite original, and the mouldings and all other details are very carefully drawn and considered. The ground story is treated with large circular windows, with moulded archivolts broken through at intervals by voussoirs accentuated by carved ornament on their face. In the spandrels of these windows are excellent bas-relief symbolical figures designed by Mr. Pegram, while below are a series of panels of historic representations of shipping, we presume intended for mosaic. The large carved ovolo moulding below the balustrade of the upper story is a good point, and tells all the more on account of the generally plain treatment of the front. Bands of a darker stone are introduced in parts, just sufficiently to break up the general light tone of the wall surface a little. Altogether a most satisfactory example of an architectural form to a business building.*

Messrs. Ernest George & Peto have fewer exhibits than usual this year, the drawings of "Morning-room and Hall, Motcombe, Dorset," (1,561) and "New Wing to North Mymms (1,562), forming the only representation of their works. The morning-room in the former design, completely wainscotted and with a ceiling decorated with an elaborate rib-and-panel design, has an appearance at once comfortable and dignified. The more robust treatment of the hall, with its heavy-timbered roof and bare stone walls partially hung with tapestry, is in effective and suitable contrast. No. 1,562 is in the authors' usual pleasing but rather archæological style of exterior; we fully recognise, however, the amount of variety of character which they contrive to obtain in this style of house by very simple variations of treatment. Why, however, we may ask, disfigure the centre gable of this pleasing façade by an ostentatiously displayed rain-spout introducing a marked sloping line at variance with the architectural lines of the building?

"Bickley Hall Stables" (1,560), by Mr. Ernest Newton, shows some special character in the treatment of a stable building, to which in this case a certain breadth and dignity is given by the use of large semicircular windows, and additions of columns flanking the central arch under one of the buildings. We wish a plan had been added. Mr. Millard's "Addition to Wickham Hall" (1,563), a sensible-looking mansion design of no very marked character, also suffers from the want of a plan, which might have shown us whether the rather awkward manner in which a semi-octagon projection abuts against the side of the projecting wing really arises (as one may suppose probable) from the exigences of plan in fitting a new piece on to an old house. As it is, one cannot form any judgment which is new and which is old.

The Memorial to the late C. W. Cope, R.A. (1,566), by Mr. J. W. Simpson, is a square-shaped stele with considerable entasis, carrying a square of modillion cornice, above which is a cross supported by two infantile figures or genii. As an example of a memorial, though simple, it is suitable and in very good taste.

"Design for a Frieze" (1,568) by Mr. Paton Wilson, is a good piece of colour; the elements of the design consist in animals running through a twine of foliage, which latter does not seem to us conventionalised sufficiently, with the result that the curves are broken and irregular and not sufficiently decorative in effect. The design of a similar class called the "Awakening of Spring" (1,584), by Mr. E. M. Atkins, which forms a pendant to it in the hanging, is more to our liking in this respect; it is also a design founded on natural forms, but the lines are kept cleaner and more symmetrical. A "Design for Stained Glass" by Mr. J. H. Newman (1,572) is a good bit of glass design of Renaissance feeling, with a squarely-treated border suited for a window of a mansion, and a centre panel occupied by two figures on a ground of floral design.

"New Houses, Gainsborough Gardens" (1,576), by Mr. Horace Field, is an example of simple and unpretending treatment of rather small street dwelling-houses, to which a certain dignity and unity is given by a rather strongly-marked cornice which runs along the front and round the two projecting bays, thus connecting the whole. The entirely plain masses of chimney-stack in the centre seem a little too heavy for the rest of the building; they would have been better for a little breaking up.

* This drawing was illustrated in the *Builder* for August 26, 1893.

Of four designs by Mr. Basil Champneys which hang next each other, we prefer the "Pfeiffer Building at Newnham College" (1,580), illustrated in our last number, to which we may refer the reader. Besides its architectural interest as an important addition to Newnham College, the building forms a kind of monument to the lady who left the funds for it, and whom many who knew her will be glad to see commemorated in that way. Mr. Champneys' "Slindon Church, Staffordshire," (1,578), is a small church to which unusual dignity is given, in proportion to its size, by the massive low square tower which rises over the crossing. The battlemented finish of this tower, however, above the corbel-moulding, strikes us as rather out of scale with the other portions of the church; wanting a little more delicate treatment. The design by the same architect for "Reredos, S. Mary Star-of-the-Sea, Hastings," (1,577), is an elevation line drawing of a reredos in late Gothic style, with some special touches in the detail; the cresting has a rich and satisfactory effect.

Of the two houses shown in neat pencil drawings, by Mr. A. F. Vigers (1,581, 1,583) we prefer the "House at Beckenham," which has a good deal of quiet character, especially in the projecting portion in which the angles are treated in buttress form, with the window mouldings stopped against them. There is no plan to either. "Darlington Municipal Buildings," Competition design (1,587), by Mr. F. Pennington, is an elevation of what may be called good municipal Gothic style, in which some good effect is made by the varied treatment and grouping of the windows.

Mr. Robson's "Ashton Grammar School" (1,588) is shown in a very highly-finished pen drawing, with a small plan, not easy to see at the height at which the drawing is hung. If one could study the plan better it might be more easy to see the reason for the rather broken up and heterogeneous treatment of several portions of the exterior, which in the view do not seem sufficiently to belong to one another; it is not so much an emphasising of different portions by different treatment, as a treatment of them in what may almost be called different styles, and the result is that the whole wants unity, and seems a collection of several buildings rather than one whole.

"Birdseye-view from North-West of the New Monastery and Collegiate Buildings, St. Lawrence's, Ampleforth" (1,591), by Mr. Bernard Smith, gives the perspective view of this great establishment, the plan and elevation of which were published in the *Builder* for April 8, 1893. The tower and spire, which stand over the centre of the chapel, rise effectively from the midst of the large group of buildings, which are naturally (for an establishment of purely Mediæval type) in a purely Mediæval style. The chapel, in which the nave and choir are of the same length and treatment on each side of the crossing, is apparently entered from the centre of one side, opposite the tower, an unusual arrangement for which we presume there is some special reason.

"A Country Town Club" (1,589), by Mr. G. L. Morris, is a very unusual and characteristic little elevation, lined in by hand (without a ruler, that is to say), in lines of different colour, according to the material to be suggested. The design, of a simple and unpretending character, but sufficiently diversified in outline by the raised mass, with a flèche, at one point, and the little quasi-campanile at the end, is exactly suited in expression for such a building as it represents, and the drawing presents also an interesting specialty in method of architectural drawing. A plan is added.

Mr. Selden Wornum's "The Library, Royal Residence, St. Sebastian" (1,590), a coloured elevation of the side of a room, presents nothing out of the way in design or treatment, but is entirely satisfactory in point of taste and harmony of colour in a subdued key.

Mr. F. A. Walters exhibits an exterior view of his "New Church, Dorking" (1,593), a very plain and solid church in Early English style, a very pleasing building of its type; and an interior very slightly sketched of his "Catholic Church, Bow Common" (1,594), in which a rather elaborate and effective rood-screen is the principal point of treatment; a drawing not quite up to its author's reputation as a church architect.

"Ashcroft; Garden Front" (1,595), by Mr. W. F. Unsworth, is a perspective drawing of an interesting example of what may be called the cottage type of country house. The large low gabled projections, two of them projecting at right-angles and the third obliquely from the principal front, the low walls and high-pitched roof, combine to give that kind of effect of a "nest" rather than a house which one finds sometimes in

Old House, Ifield, Sussex.—From a Drawing by Mr. E. B. Lamb.

rambling old country houses. There is no plan, which is to be regretted; it would be interesting to see how far the in-and-out design of the house works out conveniently on plan.

Mr. Leonard Stokes sends two designs, as usual marked by originality of treatment. "St. Augustine's Church, Sudbury" (1,596), has a solid square-looking end elevation to the nave, the fronting line only broken by a partial rise in the centre, parallel with a raking moulding which spans the whole wall a little below. This moulding cuts through some horizontal bands of light-coloured stone in a manner which is not quite satisfactory to the eye, as if it interlaced with them. The tower is banded in a similar manner in the upper portion, the *fond* of the walls being apparently brick: a small octagon lantern looks rather lost on the centre of flat roof of the tower. The same architect's "Nazareth Home, Bexhill" (1,597), is an excellent example of the utilitarian building just raised out of utilitarianism by a few touches of character. It is a large unbroken parallelogram of building, with a ground story in brick (?) with large nearly semi-circular windows having reference obviously to some special function of this story; above the walls are white, we presume cemented, with plain sash-windows and very widely-projecting eaves with a flat soffit. Over the recessed entrance portion is an arched opening on similar lines to the ground floor windows, with a balustrade in front and two statues erected on it, standing out against the shadow formed by the recess in the rear. The spandrels of the arch are occupied by medallions in monograms. The design is an excellent study of what may be done by a few touches to relieve a building of this class from commonplace.

PUBLIC WORKS IN SAN JOSÉ, COSTA RICA.—According to a recent report of the British Consul at San José, many new residences are being erected in that town, which is extending in all directions, and roads levelled and macadamised. The new theatre, an imposing edifice, has made much progess, and is expected to be opened at the end of the year. Two large churches, chiefly of iron from Belgium—the one in San José to replace the church of "La Merced," and the other in the village of Grecia, to replace one seriously damaged by an earthquake—are being constructed. A large iron school-house, imported from Belgium, is being erected in the park of Mara Zan, and is nearing completion. The electric light is coming more into general use every day, both for public buildings and private dwellings. The telephone has been introduced and is in use in all the principal commercial houses, and will soon be extended to the provinces.

OLD HOUSE, IFIELD.

THE author of this pretty sketch of a very picturesque bit of old building is not able to give us any special information about the house. He believes it is called "Ewehurst," and the sketch shows only a portion of the house, which is partly surrounded by a moat in which water still remains. The house is, as far as he remembers, all of one date. The drawing, though only recently sent to us, is from a sketch made some years ago, and Mr. Lamb has no further notes as to the history or details of the house.

NINETEENTH CENTURY ART SOCIETY.—To-day (Saturday) has been appointed for the private view of the Summer Exhibition (the thirty-second) of the 19th Century Art Society, at the Conduit-street Galleries, and the exhibition will open to the public on Monday next.

FORESTERS' CONVALESCENT HOME, CLENT, WORCESTERSHIRE.—A convalescent home for Foresters has just been opened at Clent. The building is built of red brick, relieved with stone dressings, and its cost has been about 2,000*l*. Mr. B. Corser, of Birmingham, was the architect, and Messrs. Guest & Son, of Stourbridge, the builders.

COMPETITIONS.

SCHOOLS, LOWESTOFT.—At a recent meeting of the Lowestoft School Board a report from the General Purposes Committee was read with reference to the competition for new schools near Church-road. Twenty-nine sets of plans were sent in, and Mr. J. Morris, of Reading, Architect and City Surveyor, was appointed assessor. The committee having made a careful inspection of the twenty-nine sets of plans sent in, considered that the three best were those bearing the mottoes "Star," "Merlin," and "Birch Rod," and placed them in the following order, viz.:—1st, "Star"; estimated cost accompanying the plan, 6,000*l.* 2nd, "Merlin"; ditto, 6,000*l.* 3rd, "Birch Rod"; ditto, 6,200. The assessor, after investigating the above estimates, is of opinion that they are all too low, and considers that the final cost of the three designs will be as follows, exclusive of architect's commission:—"Star," 7,525*l.*; "Merlin," 7,620*l.*; "Birch Rod," 7,755*l.* The committee recommended that the plans marked with the motto "Star" be adopted by the Board for the new school, and that Mr. W. Rushworth, of Adelphi, London, the author thereof, be appointed architect of the works. They also recommended that the premium of 10*l.* 10*s.* be paid to Mr. F. S. Silcock, of Bath, the author of the plans marked with the motto "Merlin," and that the premium of 5*l.* 5*s.* be paid to Mr. J. W. Stoubold, of Bloomsbury, London, W.C., the author of the plans marked with the motto "Birch Rod." The recommendations were agreed to.

LONDONDERRY BATHS AND WASH-HOUSES.—The Corporation of Londonderry have appointed Mr. William M'Elwee, M.R.I.A.I., of Londonderry, as professional referee to examine and report on the designs submitted in this competition.

ELECTRICAL LIGHTING STATION FOR THE VESTRY OF ST. MARY, ISLINGTON.—A limited number of architects were recently invited to submit designs in competition for the structural work of an electrical lighting station for Islington. These designs, distinguished by numbers only, were duly considered by the Electrical Lighting Committee of the Vestry on the 17th inst., and acting upon the recommendations of Mr. Albert Gay, the electrical engineer to the Vestry, the design "No. 3" was formally adopted, and its author duly appointed architect to carry out the work. On the envelope accompanying this design being opened the name of the successful competitor was found to be Mr. A. Hessell Tiltman, F.R.I.B.A., 70, Torrington-square, W.C. The present plans (which form a first portion only of the future contemplated establishment) provides accommodation as follows:—Two boiler-houses, each 112 ft. by 56 ft., two dynamo and engine-rooms, each 112 ft. by 44 ft. Arc lighting plant room, 62 ft. by 40 ft., testing-room, oil and waste stores, general stores, switch room, machine and fitting-shop, smith shop, carpenters' shop, stokers' mess-room, cloak-room, &c., coal-store, water-tank for some 120,000 gallons, and offices for the departmental engineers and the general clerical staff. The estimated cost of this structural work of the first part of the scheme is about 20,000*l.*, and the work is to be immediately proceeded with.

CLOCK TOWER, WESTON-SUPER-MARE.—We are informed that the design by Mr. S. J. Wilde, architect, and submitted by Mr. W. E. Perrett, clock-maker, for the Pigott Memorial Clock Tower, to be erected on the sea front at Weston-super-Mare, was finally selected out of about fifteen sent in.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general meeting of the Edinburgh Architectural Association was held in the Royal Institution, Princes-street, Edinburgh, on the 16th inst., Mr. W. W. Robertson, President, in the chair. The following office-bearers were elected for the ensuing year:—President, Mr. W. W. Robertson; Past-President, Mr. John Kinross; Vice-Presidents, Dr. Anderson and Mr. Thomas Ross; Secretary, Mr. T. Fairbairn; and Librarian, Mr. Thomas Ross. The various committees were also arranged. The Chairman, in his valedictory address, reminded the members that in March the Council of the Association had waited upon the Edinburgh Town Council to urge two points—(1) That the best architectural skill available should be conjoined with that of the engineer who might be invited to design the new North Bridge; (2) that in respect of the buildings at the north end of the bridge which the railway company proposed to rebuild, the existing restrictions as to height should be maintained entire and undiminished. The deputation was most courteously received, and fondly hoped that it had so far impressed the Corporation that it views would be adopted. What might be the action of the Town Council as to the designing of the new North Bridge he did not yet know, but as to its action on the other point, he must confess to a feeling of profound disappointment. The present height of the higher portions of these buildings was about 55 ft., and the railway company proposed to take power to build the ceiling of the highest inhabited story 95 ft. above the level of the street. What the city had agreed to was a clause providing that the height should not exceed 80 ft. to the wall head without the consent of the Corporation. The difference between these two conditions was very much the difference between "Tweedledum and Tweedledee," and the concession secured by the town, which seemed little enough at first sight, was found on examination to be nearly altogether illusory. From Sir Walter Scott's Monument and Princes-street to the West, the proposed buildings would wipe out the view of the Calton Hill. Viewed from the Calton Hill, in the vicinity of Nelson's Monument, (whence one of the finest views of Edinburgh was obtained), the effect of such a building would be simply disastrous. It would block the view from the Castle Hill on the left to the Scott Monument on the right, and shut out the views of the valley as completely as if a huge shutter were drawn up. The building would also shut out of view the whole vertical portion of the outline of the Castle rock, in that way not only entirely destroying its characteristic appearance, but depriving it of half its apparent height. From nearer points of view—from the south looking down the North Bridge, and viewing it as part of the group surrounding the Register Office crossing, the effect was equally disastrous. He saw from the newspapers that one Town Councillor gave it as his opinion that the Committee of the House of Lords would not be likely to interfere with the Bill because the building would shut off the views of Princes-street gardens from the Calton Hill. Whether as representing a fact (if it did so) or as shadowing forth the state of mind of one of the guardians of the beauty and amenity of their "own romantic town," it would, in his mind, call forth very different emotions than the laughter with which it was received. Surely the beauty of Edinburgh was beyond price, and if her sons had that deep appreciation and affection for her which they ought, they would value those who tenderly sought to preserve it. For the actual action of the Town Council he could find many excuses. In the complex negotiations with the railway company, the Corporation had to give and take; and it was unfortunate from the architectural point of view, that there were other points to which that body attached more importance. The Bill had still to pass the House of Commons, and he would fain hope against hope that some amendment might then be made. Mr. James Brown, W.S., moved, and Mr. Thomas Bonar seconded a vote of thanks to Mr. Robertson, after which the proceedings terminated.—A party of members of the Association visited the old Castle of Dalzell, the seat of Lord Hamilton, on the 19th inst. The original keep of the Castle probably dates from the fifteenth century, and was doubtless built by Dalzell of that ilk, a family in whose possession the barony had been for several generations till 1647, when it was acquired by James Hamilton, of Boggs, ancestor of the present proprietor. He made extensive additions of the Castle, and his arms and those of his wife, Jean Henderson (of the Fordell family), are still to be seen on the house, with the date 1649. The present Lord Hamilton greatly added to the structure about 1847. The late Mr. Billings, the author of "The Baronial Antiquities of Scotland," was the architect employed. The party next walked to Jerviston House, about a mile distant from Dalzell. This is an ancient seat of the Baillie family, and overlooks the Clyde not far from Motherwell.

GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.—The opening lecture of the Architectural Summer Measuring and Sketching Class of the Glasgow and West of Scotland Technical College, on "The Value to the Architect of Sketching and Measuring Old Buildings and hints on how to do so," was delivered on the 7th inst. in the Architectural Studio, 204, George-street, by the lecturer, Mr. Charles Gourlay, A.R.I.B.A. and I.A. The first class at the Cathedral was held on Saturday, 12th inst., under the lecturer and the instructor in the studio, Mr. James Lochhead, A.R.I.B.A., and will meet weekly till October. Another lecture is to be delivered in the studio, on Tuesday, 29th inst., at 7.30, on "Scotch Mediæval Architecture, having special reference to Glasgow Cathedral," by the lecturer.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—On the 16th inst. a meeting of the British Archæological Association was held, Mr. Allan Wyon, F.S.A., in the chair. The progress of the arrangement for holding the year's congress at Manchester was detailed. Mr. Wells exhibited an ancient horse-shoe of very peculiar form, having been made to encase the foot, to which it must have been secured by bands. It was found with objects of Roman date in Great Swan-alley, City. Mr. Woods reported the execution of some excavations for water-pipes which had been carried through the old Roman gate on the Balcon Hill, Colchester, under his oversight, when the mode of forming the foundations was laid open to observation. No injury of any kind, but very much the reverse, has been done to the ancient work. Mr. Barrett exhibited drawings of a curious window formed of moulded brick which still exists at the Victualling Yard, Deptford. It is dated 1513, and bears the initials of Henry VIII. He also described some of the old customs of the dressing of ancient wells, notably that at Tissington. A paper on the ancient Vitrified Forts of Scotland, prepared by Miss Russell, of Galashiels, was then read in her absence by Mr. Loftus Brock, F.S.A. The various specimens in the country were described in detail, and the theories of their formation passed in review. In the discussion which ensued, Dr. Phené, F.S.A., referred to the existence of vitrified forts in Hungary and in many other countries, and produced a fragment of basalt melted, and joined to sandstone, from a fort in Brittany, where internal buildings as well as external walls had been formed by the action of fire. Dr. Winstone and other speakers referred to the properties of culm and other seaweeds, to form a flux, and suggested that it was used in the construction under review. The few specimens of vitrified forts in England were mentioned.

Illustrations.

THE PROPOSED NEW CATHEDRAL, BERLIN.

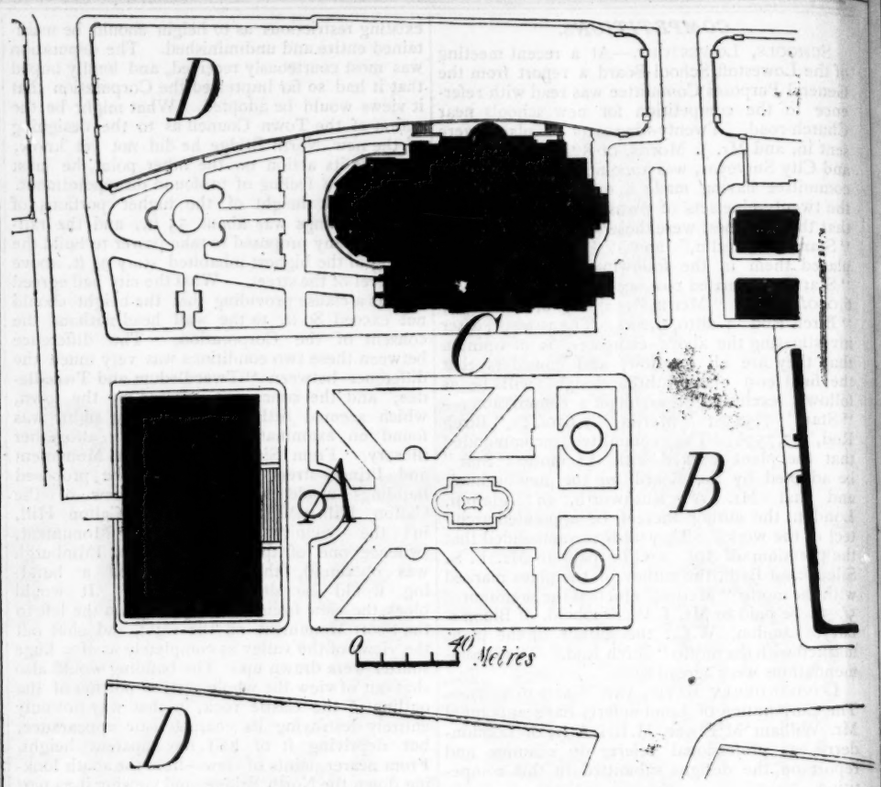
NEXT month the German Emperor proposes laying the foundation of the new cathedral of his capital. The Prussian Diet has already agreed to the estimated expense, and an army of workmen is busy on the site. The Emperor has also already determined when the building is to be consecrated, so that it seems probable that at last Berlin is really to have the cathedral for which she has been striving nearly two centuries.

For the history of this cathedral practically commenced two hundred years before its consecration. Frederick I., King of Prussia, as far back as 1703, ordered his Court architect, Schlueter, to prepare the first design for the building. The King's ambitious ideas not being feasible at the time, the matter was dropped; but the initiative given, after much controversy, practically resulted in the erection of the old Berlin "Dom," which has now had to be pulled down to make room for the new one. The old "Dom" was built under the superintendence of the Court architect, Boumann, between 1747 and 1752—*i.e.*, in the reign of Frederick the Great. It was restored and enlarged in 1816, Schinkel acting as the architect on this occasion, and Frederick William III. as client. During the two decades previous to this restoration there had been a number of proposals as to an entirely new building, but it was not until the repair of the old "Dom" had been ordered that Schinkel was also officially commissioned by the King to prepare a design for a grand cathedral, which was to have a more suitable site than the existing one. The tranquil state of Prussia at the time encouraged the realisation of the scheme, but it was practically left to Frederick William IV. on his accession to the throne (1840) to take the somewhat rash step as having the foundations of a new cathedral commenced without first assuring himself of the necessary financial support. The works had soon to be stopped, and the enormous masses of bricks and mortar, after having been an eyesore for half a century, have at last had to be removed, in the same way as the old "Dom," to make room for the building now started at the present Emperor's command.

Soon after the Berlin riots of 1848, the Cathedral scheme again came to the foreground, but without any practical result. It was left to the old Emperor William I., then only King of Prussia, to take what was at that time the novel step of opening an architectural competition for the design in 1867, and to his son the Crown Prince, afterwards Frederick III., to have some of the proposals made on this occasion further developed. The competition created considerable sensation at the time, though it had no direct result. Fifty-one designs were sent in, and ten premiums were awarded. The estimates of the buildings proposed varied between nine and twelve million marks (or 450,000*l.* and 600,000*l.*), sums which meant more at that time for Prussia than they do now, and most of the designs showed a central disposition, with a cupola at the crossing. The drawings sent in at this competition have served as the basis on which Herr Raschdorff's design has been developed.

It was the Emperor Frederick, then Crown Prince of the German Empire, who gave Professor Raschdorff the commission to prepare a design for the cathedral, in accordance with a "programme" which he had personally prepared, and the learned Professor most carefully worked to his Royal client's requirements, and practically under his supervision. The site originally intended in 1703, and on which the old "Dom" was standing, had to be used, unsuitable as it was both in its aspect, situation, and shape. The building was to have the aspect of a Renaissance cathedral. As to expense, this question was hardly to be taken into account. One preliminary design followed another, until at the time of the Emperor William's death the Cathedral plans were practically already prepared for his sanction. During the Emperor Frederick's short reign there was no time for the initiation of such a scheme, otherwise the cathedral would no doubt have been the first monument he would have wished to start. It was left to the present Emperor to see his deceased father's wishes carried into effect, and this he has most loyally done; site, architect, and to a great extent the design being retained, notwithstanding the enormous opposition he has encountered.

The Emperor Frederick had originally intended that the cathedral should be in direct communication with the royal castle by way of a covered passage, at the gallery level. He had also wished to make the main entrance of the cathedral in some sort a monument to William I. The relinquishing of these two ideas formed practically the only important alterations in the programme. Professor Raschdorff's instructions were to erect a cathedral with its main front to the south-west. The cathedral was in the first instance to comprise what we will term a "cathedral church," a "memorial church," and a "baptistery." The "cathedral church" was to serve the purpose of a place of worship both for the members of the "Dom" parish and the Imperial Court. It was also to be available for great Court or State ceremonies such as we have seen here at Westminster Abbey on the occasion of the Jubilee, royal marriages, and funeral services. The cathedral church was to be as imposing as the site would allow, and yet at any cost entirely separate accommodation was to be provided in it for the Court, the Diplomatic Corps, the ministers and clergy, a requirement which certainly interfered with the realisation of the architects' ambition to make full use of his very limited space. The memorial church was to be essentially a kind of mausoleum for the Royal line of "Hohenzollern," its crypt being intended as the last resting-place of the members of that family. There were to be facilities for holding funeral or memorial services in this part of the block, and there was to be easy access to the crypt. The baptistery was to be chiefly for the use of the Dom Parish, and the scene of most of its marriages, &c. It was essential that it should have its own approach, be easily cut off entirely from the rest of the building, unostentatious in character and provided with its own offices. Some class-rooms and the offices of the Dom Chapter had to be found room for, and great care was to be taken to also give these separate entrances. Professor Raschdorff again prepared a number of preliminary designs to suit the present Emperor, and in January, 1891, put the results of his labour before the Prussian Diet and the public. He had had a large and very effective model made by Professor Lessing as well as a full set of tinted drawings to a quarter scale. They were to be seen for many months in the Central Hall of the Arts and Crafts Museum, and throughout the time of their exhibiton there was a continual outcry against them. Both the daily and the technical press busied themselves with the subject, and published all manner of counter-proposals. The architectural and Church societies were constantly discussing the matter, and in Parliament the *pros* and *cons* of the scheme took up much valuable time in animated party debates. The cost of Herr Raschdorff's design, which had been estimated at 900,000*l.*, was, of course, also to a certain extent, the cause of much adverse criticism among the ratepayers in the provinces, who did not seem to care to pay for this royal luxury, as it was considered to be.



Berlin Cathedral: Block Plan of Site and Surroundings.

A. The Royal Museum. B. The Royal Castle. C. The New Cathedral. D. The River Spree.

It would be of little interest to further follow the complications of the case. It will suffice to say that whilst eloquent orators in Parliament told the country's representatives that it was not the idea of having a cathedral that the electors disliked, but the actual design and the architect, the Emperor, on the other hand, simply acted up to his motto, *sic volo, sic jubeo*, and ordered Professor Raschdorff to proceed with his work. The Emperor, however, expressed a wish that he should try to keep down the cost of the building, if possible, to the sum of ten million marks, or 500,000*l.*, and gave him permission to reduce the size of the block and save in the quality of the materials to the extent of this reduction. Herr Raschdorff practically changed the scales at the foot of his drawings so that the dimensions throughout should be smaller by one-tenth, then carefully modified his design with the object of saving in the quantity of the materials used, and revised his specification, ordering inferior materials and cutting out much of the sculptural and fresco decoration he had intended. The result of these alterations was that the estimate for the building was actually brought down to 9,818,900 marks, or 490,945*l.*, a sum which, however, we feel sure will have to be considerably exceeded before the full completion of the work, as it is notorious how regularly the German public buildings exceed their estimates, if the latter have to be cut down to obtain the requisite preliminary Parliamentary or other official sanction. The extra cost generally consists of items for a better class of decoration, which it would mostly be ridiculous to refuse, when the main and most expensive part of the structure is completed. The German architect's pet tactics are to point out the irrationality of using what he calls the "sham" materials, such as the stucco and paint he has specified, and he tries to obtain stone, marble, and natural woods instead; he then also points out the inconvenience of postponing the sculptural and fresco decoration until the building is inhabited, and, as a rule, his arguments gain him the day.

The design which we illustrate is the revised one, which is officially at present to cost 490,945*l.* The plan and the details are taken from the actual working drawings, copies of which were kindly lent us by the architect to prepare tracings for reproduction from. There are some discrepancies between the plan and the details on the one side, and the elevation and section on the other, due to the alteration of some parts of the design when it was being redrawn for actual execution. These alterations principally affect the shape of the chapels to the north-west front and the apse to the north-east.

On referring to the block plan the relative positions of the new cathedral and the Royal Palace explain themselves. When approaching from the main thoroughfare of the city, *i.e.*, "Unter der Linden," the aspect should certainly be a very imposing one, the more so if one considers that by the time the cathedral is finished there will be some other museum as a background to the east (the so-called "Museum Island" scheme), whilst close at hand on the west will be the new national monument to the Emperor William I. The main front of the cathedral measures 270 ft. in length. The cross is about 330 ft. above the pavement.

On passing up the flight of steps to the main entrance of the cathedral there will be a fine aspect to the right and left of the great porch, as there is little doubt that the broad passage which runs along the front of the block and is so well lighted will be very effective, the more so if full advantage be taken of a good colour study on this, the sunny side. Three doors from the main entrance proper, a few steps takes one across a somewhat low vestibule to the space under the dome. The height of the porch is 68 ft., the vestibule is 20 ft. high, and the dome (taken at the foot of the lantern) 240 ft. The effect of these sudden contrasts will be somewhat startling, though we fully recognise the difficulties which have beset the architect in fulfilling the requirements put to him. One of these was an order that the Royal seats should be directly opposite the altar. These seats have been placed over the aforesaid vestibule. They could not well have been placed at a higher level. It is under the dome that the services will be held—*i.e.*, it is this part of the building which is to serve as the "cathedral church" proper. The orientation of the altar is exactly north-east, and the pulpit stands exactly to the east. There will be seats for a congregation of one thousand four hundred and eighty on the floor, and besides this there will be a gallery to the south-east—if we

may call it so—for another hundred and twenty, besides the choir gallery to the north-west for two hundred; the court seats, to which we referred above, for seventy, and the galleries in the three niches reserved respectively for the ministers, the diplomatic corps, and the clergy, with forty seats each. The total seating accommodation is hence one thousand nine hundred and ninety, which, on extraordinary occasions, could easily be increased to three thousand, whilst at State functions, when the majority would stand, room could be found for quite five thousand without crushing.

The chief dimensions of the cathedral church are 170 ft. from the main entrance doors to the back of the altar and 100 ft. for the interior diameter of the dome. As will be seen from the section, the light enters at eight sides through large windows between the two entablatures and smaller ones at the base of the dome. Some light will also enter through the lantern. The daily offices in connexion with the cathedral church proper consist of a vestry and a waiting-room on either side of the altar, each of which have their own entrance and lobby from the north-east front.

As regards means of ingress and exit the plan shows there will be a sufficient number. There will also be ample communication with the galleries, five staircases having been provided for this purpose. One of them is reserved for the Court. Members of the Court intending to use the royal seats have a special carriage approach at the south-east end of the long passage on the main front. There is a separate lobby for their use and a lift has been provided. The other south staircase is reserved for the Diplomatic Corps. The approach to this staircase can be easily cut off when requisite, and the whole of this Court and Diplomacy corner kept private if the occasion requires it. The Ministers of State will use the west staircase, whilst the clergy will share the east staircase with that part of the congregation (probably Court officials) which is to have seats on the south-east gallery. The choir has its own staircase at the north corner. The two last named staircases, which are approached from lobbies on the north-east front, also lead to the confirmation and class-rooms, which are on the same level as the galleries, and to the offices of the secretaries and treasurers to the "chapter."

To the north-west of the dome the design shows the proposed memorial church, which, with its crypt, is to form a kind of *campo santo*, in which memorial and other services can be held on special occasions. Though this part of the building has its own approach from the outside, viz., at the north-west corner of the main front, its principal entrance will practically be from the cathedral church through three doors on the north-east. The plan here explains itself, the ring of side-lighted chapels, if we may call them so, giving excellent opportunities for placing the memorials, whilst the top-lighted centre part remains free for the services. As will be seen, a staircase is to give easy access to the crypt, which will be a very extensive one, including, as it does, the space under the dome. The crypt will be tolerably well ventilated, and the part under the memorial church even fairly lighted from an area running round the north-east side of the block. The height of the crypt averages from floor to vault 16 ft.

The baptistery required both for small christening and marriage ceremonies has been given a place on the south-east front facing the Royal Castle. It is practically an entirely independent part of the building, with its own approach, entrances, lobbies, and sacristies, though it can also easily be reached from the Cathedral Church proper by three doors and from the Royal entrance and staircase by a fourth. The altar has an orientation due north-east, and there will be sufficient seating accommodation for a congregation of 160. The main dimensions of the baptistery are 30 ft. by 65 ft. The lighting will be partly from the top and partly from the side. A winding staircase leads to a small gallery opposite the altar.

Considering the innumerable complicated requirements which have had to be fulfilled by the architect on a site so little suited for a building of the kind, one may say that Professor Raschdorff may be congratulated on the clever planning of his church. He has very cleverly made the best of a bad case as far as his planning was concerned. The number of difficulties he has had to surmount are only to be equalled by the number of criticisms he has had to contend with as a Court favourite and unpopular individual.

As to the actual architectural treatment, both of the façades and the interior, one may say that though most academically correct from the German point of view, they will probably find but few admirers in this country. The younger generation of architects abroad call the building "an encyclopædia of Italian Renaissance architecture," and only wish its different parts to be labelled. This is somewhat hard on Herr Raschdorff, though there is little doubt that parts of the design have been most carefully compiled from standard works. It is just this compiled work which is, however, the essence of what is termed the "Berlin School."

As to the materials, we understand that the cathedral will be of brick faced throughout with national freestone. The extent of the sculptural and fresco decoration depends on the actual cost of covering in the building.

The demolition of the old "Dom" was commenced in February, 1893, and occupied the contractors four months. The old building was used for blasting experiments by the Royal Engineers. The foundations which King William IV. had so rashly commenced were then demolished and the actual excavations for the new building commenced. Some two-hundred men were employed, the contractor being Herr Moebius, of Berlin. Working hours were prolonged last winter till 9 and 10 p.m., electric light being laid on.

Professor Raschdorff, who is one of the instructors at the Royal Technical College, is a native of Plesz, where he was born in 1823. In 1853 he was made City Architect at Cologne, where he remained till 1879. He was the architect of the English Church at Berlin, the erection of which was practically arranged by our Princess Royal, and it was essentially due to the successful completion of this work, for which no fees were charged, that Crown Prince Frederick made him his adviser in the cathedral scheme, and finally his architect. Herr Otto Raschdorff, his son, acts as the architect's chief assistant.

The lithographs in this issue are the first illustrations of the design that have been published.

The following are the references to the letters on the lithographed plan of the cathedral:

A. Cathedral Church.
B. Memorial Church.
C. Baptistry.
a. Staircase for the Court.
b. Staircase for the Diplomatic Corps.
c. Staircase for the Ministers.
d. Staircase for the Choir.
e. Staircase for the Clergy and Court Officials.
f. Vestry.
g. Waiting-room.
h. Beadle.
x. Altar. *y*. Pulpit. *z*. Font.

Correspondence.

To the Editor of THE BUILDER.

THE HEATING AND VENTILATION OF THE HOUSES OF PARLIAMENT.

SIR,—The discussion of this subject need not be personal; your readers can judge if my previous letter contained either "misrepresentation" or "ungenerous language" attributed thereto by Mr. Keith.

Surely one has a right to challenge the wisdom of public money being expended upon a national building, when a proposal is made to carry out a scheme of ventilation based on a dual system of "propulsion" and "extraction."

The mere repetition of a general statement written by a man of acknowledged ability, of the dictum of an eminent, but anonymous, architect, and of opinions of undefined experts, upon which Mr. Keith appears to rely, does not constitute argument likely to convince those who hold that there must be loss of power, unnecessary complication of appliances, if not absolute failure, when the plenum and exhaust systems of ventilation are together employed.

The subject of ventilating and heating has, so far, been almost monopolised by specialists, and I believe it is due to them, far more than to the architects of the buildings, if in those named by Mr. Keith, the means employed are defective.

In so saying I do not imply that the services of specialists should be undervalued, but am of opinion that architects should not be content to leave the heating and ventilation of their buildings entirely in such hands, and then accept blame when failures happen. Rather would I urge that architects should, by observation and experiment, form definite views upon the subject, and work with specialists in perfecting any system which both are agreed will secure the desired results.

Although Mr. Keith makes light of he elementary fact that air forced into an apartment *must displace* an equal volume, I maintain that it, and its converse, viz., that when extracting air from an apartment an equal volume *must enter*, are the foundation upon which any system of ventilation must be built, and my observations convince me that want of success is most frequently due to a confusion of ideas regarding these elementary facts.

If Mr. Keith is willing to discuss the subject from a practical standpoint, let him reply to the questions in the second paragraph of my former letter, and I shall be pleased, with your permission, to continue the discussion.

WILLIAM HENMAN, A.R.I.B.A.

SIR,—Had Mr. Keith confined his remarks to the above question, I should not have written you on the subject, but when he insinuates that the bad ventilation of the National Liberal Club is due to the Plenum system, as a system, I think it is right that such a statement should be contradicted, as it is not the case.

It was my business, two or three years ago, to thoroughly investigate the warming and ventilating arrangements of the Club, at the request of the Committee. Certainly the existing arrangements cannot be said to be satisfactory, nor can the system be said to have been carried out or worked in such a way as to give the best results; still, I was satisfied that such alterations could be made in the present system as would ensure a thoroughly successful application of the Plenum system.

If the alterations had been, or are, carried out which were proposed, I am convinced that the National Liberal Club will be one of the best warmed and ventilated buildings in the country, and this on the Plenum system, and using low pressure steam as the heating medium.

As to the question of the best system to be adopted, should any alteration be made in the warming and ventilating arrangements at the Houses of Parliament, doubtless a combined system of propulsion and extraction, both by power, will have to be adopted; but how applied it is impossible to give an opinion worth anything without thorough investigation and study of the buildings.

One matter in Mr. Keith's letter I can take exception to—viz., the suggestion to use hot water in place of steam. This would certainly be a step in the wrong direction, as the experience of to-day all points to many advantages in using low-pressure steam for such large buildings.

DAVID M. NESBIT.

STEAM-ROLLING.

SIR,—As the County Surveyor correspondent referred to by Mr. Allan Greenwell in your last issue, allow me to say his figures show that steam-rolling cannot be done for one-eighth the cost of the material.

Mr. Greenwell's figures show that the usual estimated price of tenpence to a shilling per cubic yard of material consolidated, is about the cost for that class of road. With a wider experience (last year I worked thirteen steam-rollers on rural roads) I find the cost varies with the material and weather, cold blast slag being the most costly to consolidate.

I am sorry to differ with my friend, Mr. de Courcy Meade, but my experience is that the heavier the roller the better the work.

ROBERT PHILLIPS,
County Surveyor for Gloucestershire.

"SEWER AND DRAIN VENTILATION."

SIR,—In the report of Mr. W. W. West's paper on this subject, as given on page 371 of the *Builder*, he makes statements which are quite unwarranted and highly misleading.

E.g., he says of the system of ventilating drains by means of a fresh air inlet on the house side of a disconnecting trap and an outlet above the roof that "it was in practice either imperfect or useless." Now this is not true in regard to much of the work so done that I am acquainted with. The *work* can be done, and is often done, in an imperfect manner, but that is not a good or fair reason for condemning the *system*. As well denounce the use of watches because many keep bad time.

Mr. West further asserts that "They could not ensure that the air inlet would not sometimes act as an outlet and be a nuisance." Now while this may show the incapacity of the "they," Mr. West alludes to, I beg to be allowed to state that in my work I find no such difficulty.

Mr. West's paper, in my opinion, is either a most unjust one or else the result of grave want of knowledge. The suggestion to use the soil-pipes of our houses to ventilate our sewers is nothing new, but is a dangerous plan, and is not justified by any statements Mr. West has made. W. P. BUCHAN.

HOT WATER CIRCULATION.

SIR,—Will hot water circulate in a flow and return-pipe (distinct from the boiler one) connected to a hot-water supply-cylinder, if both the flow and return are led to a lower level than that of the hot-water cylinder? O. G. B.

*** Although it is not generally understood that a branch hot-water circulating service can be successfully carried below its starting point—and this, on the face of it, seems opposed to the process of convection, the primary cause of the circulatory movement—yet it can be done if reasonable skill be exercised. No rule can be laid down as to how this can be regularly carried out as the circumstances and conditions in each case must differ, but answering the question as it is put, certainly hot water will circulate, and sufficiently for practical purposes, in a branch circulating service carried down a reasonable distance below its starting-point.

BOAT-HOUSE COMPETITION, LIVERPOOL ARCHITECTURAL SOCIETY.

SIR,—From what I know of the circumstances of the Students' Competition, the design of which was illustrated in the *Builder* last week, I think your remarks are a trifle hard on the successful competitor. The competition was limited to student members, and by some means Mr. Morgan, who is a professional Associate of the Liverpool Architectural Society, competed, and it was not until after the designs had been adjudicated upon that this fact was found out. The adjudicators then met again and the prize was awarded to Mr. Black, who is a *bonâ-fide* student. It was unfortunate the drawings had to be exhibited at University College before the mistake was remedied. JOHN W. BLAKEY, A.R.I.B.A.,
Member of the Students' Committee of the Liverpool Architectural Society.

MUNICIPAL BUILDINGS, ROTHERHAM.

SIR,—Referring to your criticism of my design (1,333) in the Academy, permit me to inform you that the greater part of the side elevation, so far as regards the windows which you refer to as "deficient in character and originality," is a portion of *existing* buildings which *remain untouched*.

I quite agree with you that that part is as you describe it. RICHARD J. LOVELL.

The Student's Column.

THE STRUCTURE AND PHYSICAL PROPERTIES OF BUILDING STONES.—XXI.

THE COTTESWOLD DISTRICT *(Continued)*.

PASSING through the pretty village of Avening, and continuing on the road to Tetbury, we find the

Section at Picked-Piece Quarry.

	Thickness. ft.	in.
Tile-like rubble and walling stone passing into coarser stone at base	12	6
Hard stone, used for gate-posts, steps, &c.	6	0
Soft, cream-coloured stone, used for ridge-tiles	3	0
"Weather" stone, cream-coloured, used for sills, caps, plinths, &c.	2	0
Hard "weather" stone of good quality ...	2	0

An illustration, taken from a photograph of this quarry was published in our pages some time since,* from which the student will glean something of the nature of false-bedding and kindred phenomena, as applied to oolites. The structure of the two bottom beds is very similar to that illustrated in fig. 33.

Retracing our steps to Avening, and taking the road to Nailsworth we come to the largest working in the district, known as Ball's Green quarry. It is a mine, following the stone into the hill for a distance of about a quarter of a mile, and was opened about 100 years ago. The section at the headings now worked shows about 20 ft. thickness of stone in four to six beds, depending on the precise location. Whilst the ceiling is horizontal, the beds are slightly inclined, so that on nearing the roof the stones become wedge-shaped, and eventually altogether thin out. The uppermost beds are best in quality, and we noticed that these frequently measured 7 ft. in thickness; vertical joints not being very close together, immense blocks (larger than would be required in practice) are obtainable. The ceiling is about the worst we have ever seen; the joints therein are not apparently connected in any way with those in the building stone beneath, but when a portion is about to fall the quarrymen are apprised of the fact by the continual dripping of water and clay.

It is thus a difficult quarry to work, and would probably have been abandoned years ago if the building stone were not of such excellent quality.

* See the *Builder*, October 28, 1893.

The method of quarrying is rather peculiar; but is to some extent warranted by the exceptional system of jointing, and also by the nature of the material. The stone is not sawn *in situ*, but blasted; this cannot improve its quality, as shakes and vents are likely to result from such a drastic procedure. At the same time it so hard that the system of picking a "jad" close to the ceiling and then levering out the blocks could not be economically resorted to. Another effect of the blasting is that the blocks are necessarily irregular in shape. The shot holes are horizontally drilled with stock and bit at the rate of 18 in. in 20 minutes. The method of firing is primitive in the extreme. After the charge is placed in position, a fuse consisting of a wheaten straw filled with fine powder is inserted in the hole and the tamping is rammed home. Such methods were commonly in vogue fifty years ago.

The stone from Ball's Green quarry is cream-coloured and is a perfect oolite as will be seen on reference to our illustration (fig. 34). It consists of tolerably regular oolitic granules showing structure in beautiful detail, and very crystalline. Here and there the detached spine of an echinoderm (not shown in the illustration) and the ossicles of crinoids make their appearance; the whole are cemented together by calcite so thoroughly crystalline in nature that the two predominant sets of cleavage planes are distinctly visible. When carefully selected, Ball's Green stone must be very durable. In former years it was much sent to Ireland, and is now largely used for church work, being especially suitable for ashlar, caps, bases, &c.

FIG. 34.

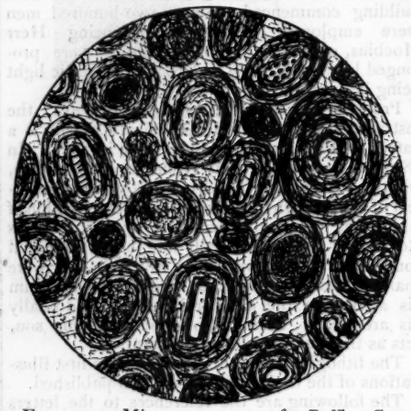


FIG. 34.—*Micro-structure of Ball's Green "Painswick" stone.*

Not far from this is another mine in the Inferior Oolite with stone of somewhat similar character; it was not being very actively exploited at the time of our visit. In the valley on the other side of Minchinhampton Common is an old working known as Wall's quarry, and other mines may be found on the Bath-road, Nailsworth, and at Brimscomb, near Stroud.

In the vicinity of Wotton Underedge (to the south-east of the area shown on our map, Fig. 32) the Inferior Oolite is well displayed and forms good building stone. At Huddingknoll Hill quarry, near Gloucester, it presents about 9 ft. of workable stone in three beds, which may be described as shelly limestones with oolitic structure developed in the upper portion. Near Birdlip, between that place and Leckhampton Hill, are some old quarries and one recently opened, supplying stone of fair quality. Judging from the circumstance that at the time of our visit loose granules were freely strewn over the floor of the workings, we should imagine that the matrix hereabouts is not as durable as the granules.

On the Cotteswolds, north of Cheltenham, on a hill called Cleeve Cloud (from the village of Bishops Cleeve) several quarries are situated in the Inferior Oolite. The freestone division is also worked at Bourton-on-the-Hill, Broadway, Guiting, Stanway Hill, Brockhampton, and Longborough. At Stanway Hill a large quarry shows a vertical section of 35 ft. capable of yielding blocks of any required size, the whole of which are of a yellowish-brown tint. At Bourton-on-the-Hill some of the beds are traversed by bands of hæmatite (sesquioxide, or peroxide of iron). In fact, a large monograph might be written on the innumerable small quarries found on the elevated tract of oolites between Bath and Chipping Campden, in the north of the Cotteswold Hills.

An immense quantity of stone has been raised from the Inferior Oolite of Dundry Hill, near Bristol, which locality does not fall quite within any of the districts we have laid down, but may be conveniently referred to here. The principal quarries are on the west side of the hill. The stone is a shelly oolite with a calcareous matrix, and rather iron-stained. It has been much used in Bristol where, however, it does not seem to have stood well, judging from experience of its behaviour in the church of St. Mary Redcliffe, and elsewhere.

8. THE OXFORD DISTRICT.

But little need be said concerning this district which is not a celebrated stone-producing centre. The white limestones of the Great Oolite are largely quarried about Souldern, Croughton, and Aynho. Near Monk's House the formation consists of flaggy, and hard white sandy limestones in beds of 3 ft., 1 ft. 6 in., and 1 ft. 3 in., whilst the Mixbury section gives hard, cream-coloured, and white limestones up to 3 ft. 6 in on the bed. All the small quarries hereabouts in the Great Oolite yield stone which may be described as sandy limestones with but little oolitic structure.

Between Brackley and Buckingham, quarries are very numerous, but are chiefly drawn upon for rough stone. They are at Westbury (sandstone and limestone), north of Shalstone-hill farm, where the beds yield a very hard white limestone of exceptional quality, also at Buffler's Holt, Boycot, &c. Near Thornborough are large quarries of white sandstone, interstratified with hard, light, yellow limestones; round Wicken, and at Silverstone the Great Oolite is extensively worked. The Cornbrash and Forest Marble provide material for estate purposes almost over the whole area where these rocks crop out.

The best-known quarries near Oxford are at Headington, showing false-bedded comminuted shell limestone 16 ft., which was formerly used very largely in that city, but has not stood the test of time very satisfactorily. At Brill and Hartwell, near Aylesbury, the Portlandian is worked for building stone. The micro-structure of the stone at the former locality is very similar to the Whitbed Portland, but it is much rougher, and occurs in irregular blocks.

9. THE KETTERING DISTRICT.

The building stones in this and the two following districts have been so fully described in our columns on a former occasion,* that all we need now attempt is to briefly describe their micro-structure, reserving the results of our physical tests, as in the case of the stones alluded to in the last article, for a comparative table to appear subsequently. We may just remind the student, however, that the principal building stones, of which there are several raised near Kettering, Stamford, and Ancaster, come from that geological division known as the Lincolnshire Oolite, which is the stratigraphical equivalent of the Inferior Oolite of the Cotteswolds.

The chief building stones in the Kettering district are those at Weldon, divided for commercial purposes into two beds—the A bed and the A 1 bed. Blocks of practically any size are obtained; it is useless to give details of the measurements of each bed, as the horizontal jointing is so variable—the courses are lenticularly disposed, which occasions some trouble in working, but this drawback is more than compensated for by the facility with which the free-stone can be driven into and mined.

Under the microscope the A 1 bed is seen to be composed of well-formed oolitic granules and fragments of organic remains coated with carbonate of lime. It differs in structure, however, from any other freestone with which we are acquainted, in that the granules so frequently interpenetrate each other. Their character somewhat recalls the familiar Bath-stone granules, but they are more crystalline; further, they adhere to each other by their outermost coatings, and there is no matrix worthy the name. The durability of the material is largely dependent on the crystalline nature of the granules, and especially on their tenacity and interpenetration. The micro-structure of the A bed shows more shelly matter, and both that and the granules are larger and more earthy than in the A 1 bed, whilst the stone is browner in tint. It is distinctly laminated, the laminæ consisting of different-sized particles. Matrix is abundant locally (as concretions) in both the beds.

10. THE STAMFORD DISTRICT.

The principal qurries are at Ketton, where the beds are of variable thickness, but mostly from 2 ft. 6 in. to 3 ft. 6 in. on the bed. The micro-

* See the *Builder*, January 10, 1891.

structure of Ketton stone is easy to describe, and the student could recognise it in a moment from its simplicity. It possesses the most perfect oolitic structure of any Jurassic building-stone in the kingdom. The granules are mostly spherical, each with nucleus and concentric structure very distinct; they are regular in size, and but very little foreign matter or organic fragments are discernible. So far, it agrees with two stones already described—viz., from Ball's Green, near Stroud (fig. 34), and the "Brown Bed" from Teffont Quarry, Chilmark. It differs from the former, however, by the absence of a matrix, the granules firmly adhering to each other; and from the latter by the absence of quartz grains, and by the more crystalline character of the granules.

The Barnack quarries are interesting, principally from the historic point of view. Pits now open show about 12 ft. of stone in two beds. The Barnack rag is noted for its enduring qualities; it is doubtful whether the real material is obtainable now.

There are several small quarries in the vicinity of Stamford. At Clipsham the freestone is quarried from beneath a considerable thickness of clays. It is a durable material, not unlike Ketton in appearance, but less even in grain, with a few shells scattered through its mass. Good cream-coloured oolite is also raised at Casterton.

II. THE ANCASTER DISTRICT.

Ancaster, near Sleaford, is a well-known stone-producing centre. The quarries are situated to the south of the railway station, and there are several of them. Speaking generally, there are two horizons from whence the stone comes—the "Rag," or "Weather" bed, light brown in colour, hard and very compact, and largely used, thickness from 3 ft. to 8 ft.; and "Freestone," light cream colour, tools easily, finest beds near the base, thickness 14 ft. to 23 ft. in several beds. In some of the quarries the beds run very thin.

Under the microscope the "Weather" bed is seen to consist of a multitude of shell fragments, with oolitic granules scattered about, the whole being bound together by a highly crystalline calcitic matrix. It is not unlike some of the best varieties of Bath stone, but is more crystalline and harder generally, whilst the calcite crystals developed in the matrix remind us more of the Chelynch Doulting stone. From its micro-structure we should say the "Weather" bed Ancaster is a very durable stone of its class.

The "Freestone" bed Ancaster is very different in structure to the "Weather" bed. It is altogether finer grained, does not contain such an abundance and variety of organic remains, its oolitic granules are practically without structure, and its matrix is not so crystalline and is more irregularly developed. The earthy nature of a considerable proportion of the granules has led to their removal during the preparation of the micro-slide. It does not appear to be as durable as the "Weather" bed.

The workings known as "Haydor" are practically at Ancaster.

GENERAL BUILDING NEWS.

NURSES' HOME, LONDON FEVER HOSPITAL.—The new home for nurses, opened last week at the London Fever Hospital, provides separate bedrooms for thirty-one nurses, with a room for two sick nurses and one for two servants. Two large common sitting-rooms are provided, one for probationers and one for staff-nurses; in addition to which there are separate sitting-rooms for Home Sister, night superintendent, and the matron's assistant; these are all on the ground floor. On each floor is a box-room, two water-closet's, and a housemaid's closet fitted for use as a boot-cleaning-room. On each of the two upper floors there are two bath-rooms, and on the ground floor is one bath-room. The corridors and staircases throughout are constructed of concrete and iron, the corridors being finished in red cement. All the rooms are furnished with picture-rails, and each nurse is provided with brass hooks, no nails being allowed in the walls. Externally the building is faced with picked stocks, with red brick arches and quoins and cast cement dressings, sills, &c., to windows. Underneath the water-closet block is the boiler-room, in which are two hot-water boilers, one for the baths and draw-offs, and the other for the coils which heat the staircase and corridors. The general building work was carried out by Messrs. Lawrence & Sons, of Wharf-road, City-road; the red concrete by Messrs. Lascelles; the plumbing by Messrs. Dent & Hellyer; and the hot-water work by Messrs. Slater & Co.; Mr. Ward was the clerk of the works. The total cost of the building was 5,113*l.* The architect was Mr. Keith D. Young.

NEW PUBLIC HALL, WARRINGTON.—A new Public Hall is being erected at Warrington, the architect of which is Mr. William Owen, of Warrington. The hall will stand on the south side of Palmyra-square, and will be 108 ft. by 64½ ft. inside, exclusive of an organ chamber 30 ft. by 16 ft. The body of the hall on the ground floor will be 90 ft. by 48½ ft. It is surrounded on its four sides with corridors. Fronting the street will be an entrance-hall 50 ft. by 16½ ft., with ladies' cloak-room, ladies' retiring-room, and lavatory accomodation at one end, and at the other end there will be a gentlemen's cloak-room with lavatory accommodation. Access will be gained from the entrance-hall into the inner corridor, which, surrounding the seat space on the ground floor, will give admission by eight doors to almost any portion of the hall without interruption. On the ground floor at the east end there will be separate rooms for gentlemen and lady speakers or performers, with lavatory accommodation. On the gallery floor at the west end there will be a front gallery and a back gallery, whilst at the sides of the hall there will be galleries. Entrance to the gallery is obtained at the west end by a stone staircase. The gallery has three exit doors. From the ground floor there are eight means of exit. In the basement there is a heating-chamber and kitchen. The platform is reached from the private corridor by stairs on either side. The organ-chamber is immediately behind it, and on the gallery level there is a retiring-room for lady choristers. By the removal of partitions between the ladies' cloak-room and the entrance-hall and the gentlemen's cloak-room and entrance-hall, the entrance can be made 85 ft. long, and can be used as a refreshment-room in connexion with the hall. The clear height of the hall inside is 45 ft. The hall will accommodate nearly 2,000 people. The contract has been let to Mr. R. W. Collin.

REPAIR OF WEST KNIGHTON CHURCH, DORSETSHIRE.—The ancient church at West Knighton, which was closed for repairs in August last, has just been re-opened. The chancel roof, which was decayed, has been removed and a new roof with stone tiles erected. The inner walls have all had the old plaster cleaned off and been cemented throughout. Mullions and tracery have been added to the windows on the north side, and both windows have been made uniform. This restoration was carried out under the direction of Mr. Thomas Hardy. A little window has been re-opened in the chancel. All the windows have been reglazed except two that contain painted glass. An irregular little window with a wooden frame in the upper part of the south wall has been built up, and a sky-light has been opened to light the gallery. When removing the plaster from the south wall of the nave an old arch with pillar and a portion of a second arch were discovered. These have been restored. Traces of old frescoes were discovered on the wall of the south transept and over the church door, and inscriptions on the south wall of the nave. The gallery has been removed, and a new gallery has been put in its place. The font, which was under the gallery, has been placed near the church door. The floor has been laid throughout with encaustic tiles.

CHURCH, OXFORD.—The Bishop of Oxford recently laid the foundation stone of the new church of the Society of St. John the Evangelist, which is situated on the Iffley-road. The building will be of early thirteenth century character, and be strictly English. The plan shows a western tower, open to the nave, and almost a continuation of it. It is proposed to screen off this western part of the church with open iron screens. The nave and choir are of unbroken length, the former 88 ft. long, and the latter of a length of 60 ft. The nave, including the side chapel, will accommodate 800 persons. On the north side an aisle forms a "people's chapel." This chapel is 57 ft. long and 17 ft. wide, and will seat ninety-five persons. Externally, the building will be of stone. There will be no chancel arch; but two large stone arches are thrown across the church, and are supported by flying buttresses, surmounted by stone pinnacles. The church is chiefly lighted by clearstory windows of tall proportion. The church has piers and arches, eight in number, on each side. The complete fabric will cost about 12,000*l.*, but it is proposed to begin by putting in the foundations throughout, and to build so much as can possibly be undertaken for the sum of 5,500*l.* Messrs. Bodley & Garner, London, are the architects, and Mr. H. R. Franklin is the builder.

ENLARGEMENT OF THE PARISH CHURCH, FRINTON-ON-SEA.—This church has just been enlarged, under the plans of Mr. Henry Stone, by Messrs. Wm. Bell & Sons, of Saffron Walden. The enlargement consists of an addition to the nave westward, which has been effected by carrying out the west wall and campanile rather more than 21 ft., and by extending the south wall so as to meet it. Room for 100 additional sittings has been gained, with due space for the font, and a small vestry.

INSTITUTE, PITLOCHRY, PERTHSHIRE.—A building, which will be known as the Barbour Institute, is to be erected at Pitlochry, in Perthshire. It has a frontage of 55 ft., and is 50 ft. in width. In the basement, quarters are provided for a caretaker. On either side of the hall are refreshment rooms, with service pantry adjoining; ladies' room, caretaker's office, kitchen and scullery, cloak-room, and lavatory accommodation. On the first floor are billiard-room, committee-room, and reading-room. By removing a partition the committee-room and reading-room can be converted into a gymnasium. A smoking apartment has also been provided. Throughout, the building is heated by steam, and there is a supply of hot and cold water in the bath-rooms. The architect is Mr. J. Murray Robertson, Dundee.

INTERMEDIATE SCHOOL, BRIDGEND, GLAMORGANSHIRE.—The foundation stone of the Bridgend Intermediate School was laid by Lord Dunraven on the 21st inst. The building will provide accommodation for 120 scholars, and will cost about 3,500*l.* It is designed in native stone, with dressings of white Quarella stone and blue-black brick. The ground floor is divided into a general assembly-room, five class-rooms opening into corridors, a cooking class-room and pantry, a gymnasium with store-room, a laboratory, and a room each for the head-master and head-mistress, and the usual laboratories. There will be a large playground, with shelters. The architects are Messrs. Lambert & Rees, Bridgend, and the contractors Messrs. D. C. Jones & Co., of Gloucester.

ELECTRIC LIGHTING WORKS, WOLVERHAMPTON.—The Mayor of Wolverhampton (Alderman C. T. Mander), on the 21st inst. laid the foundation stone of the Wolverhampton Municipal Electric Lighting Works, in Commercial-road. Mr. A. P. Brevitt is the architect of the works, Mr. H. Willcock being the builder.

WESLEYAN CHAPEL, PLEASLEY.—A Wesleyan Chapel and school buildings are to be erected at Pleasley, in Derbyshire. The new buildings will consist of chapel, schoolroom, two class-rooms, vestry, and the necessary offices. The site necessitated the school being under the chapel. The main entrance is from the ground level, and stairs lead down to the school and up to the chapel. The roof will be partially open, the main timbers all showing, and docked underneath with curved ribs. The pews will have sloping backs and solid bench ends, and the rostrum is to be of pitch-pine. The general building material will be brick with stone dressings. The joinery work will be carried out in pitch-pine. The chapel will measure 56 ft. 6 in. by 34 ft. 6 in. inside, and will seat 278 adults. The schools and class-rooms will provide sitting accommodation for 225 scholars. The cost of the work, of which Mr. John Wills, of Derby, is the architect, and Mr. Smedley, South Normanton, the builder, is estimated at 1,400*l.*

NEW CHURCH AND SCHOOLS, CATHAYS, CARDIFF.—The St. Monica's new schools and church, Merthyr-street, Cathays, were opened on the 16th inst. The buildings are of Newbridge stone, with freestone facings. The schools are built to accommodate 192 children in the mixed department and 150 in the infants', the cost altogether being about 3,200*l.* Three class-rooms are attached to the mixed department and two to the infants'. The large mixed room will be used also for religious worship on Sundays. A chancel is added at one end. Fitted up with an altar table and other requisites, it is divided from the rest of the room by a metal screen and a curtain. The chancel is fitted with choir stalls. The central window is of coloured glass, and an organ chamber is attached. The builders are Messrs. Lattey & Co., and the architect Mr. Bruce-Vaughan.

CATHOLIC CHURCH, DUDLEY-ROAD, BIRMINGHAM.—The foundation stone of the new Church of St. Patrick in Dudley-road, Birmingham, was laid on the 9th inst. by the Reverend Dr. Ilsley, Catholic Bishop of Birmingham. The building, which is twelfth-century French, is being erected at a cost of about 5,000*l.* from the designs of Messrs. Dempster & Heaton, architects and surveyors, of Birmingham, Mr. John Bowen, of Balsall Heath, being the builder.

PUBLIC BATHS, OLDHAM.—On the 12th inst., new public baths, which have been erected in Cedar-street, Waterhead, Oldham, were opened by Alderman J. Hood, J.P. The building is situate on the corner of a plot of land abutting on Cedar-street on the front, and Mortar-street on the side. The superintendent's house is placed at the angle of the two streets, and has lobby, sitting-room, kitchen, and scullery on the ground-floor, three bed-rooms, and also a cellar. In the centre of the block is the ticket-office. On each side of this room are the male and female entrance corridors, fitted with swing doors, having upper panels glazed with lead lights, and separated from the ticket-office by glazed screens, with bay window and registering turnstiles to each, a gate being provided to the turnstiles for use of officials, &c. Behind here there is a cross-corridor, which leads on the left to twelve male slipper-baths, and on the right to six female slipper-baths, there being a separate waiting-room provided for each sex. The whole of the slipper-baths are porcelain, glazed both inside and outside, having no wood-framing round whatever. The supply of hot and cold water to the baths is regulated by means of valves worked by a detachable handle by an attendant in the corridors. From the cross corridor the plunge-bath is reached, the dimensions of this room being 74 ft. by 46 ft. The bottom of the bath is tiled with black and white tiles formed in panels, the sides being faced with white glazed bricks. A diving platform is provided at the deep end of the bath. Round the gangways are ranged 42 dressing-boxes, there also being the necessary foot-bath, shower, water-closets, urinals, &c. Six Stott Thorp pendants

with ornamental wrought-iron scrolls are provided. The entrances to this bath are so arranged that it can be used by either sex without interfering with private bath corridors. At the rear of the premises are the laundry and boiler-house. The machinery used in the laundry is worked by steam-power by means of a vertical steam-engine and shafting driven with belting. A two-flued boiler, made by the Oldham Boiler Works Company, supplies steam for the whole of the system throughout. The floors to the whole of the baths and corridors are of steel joists and finished with granite-faced concrete, being supplied with channels and grids to convey away surplus water. The baths and corridors have dados of white glazed bricks with ornamental bands at top. The whole of the premises are heated by steam. The continuous lantern lights, both over plunge and private baths, are made to open from end to end for ventilation, by means of cranked levers, &c., worked by an attendant from the floor. The whole of the building work has been carried out by Mr. William Lees, the sub-contractors being:—excavating, concreting, and brickwork, Messrs. S. & J. Smethurst; masonry, Mr. J. Bebbington; steel joists, &c., Mr. Edward Wood, Manchester; wrought-iron work, Mr. J. Kershaw; slating, Mr. Joseph Jackson; plumbing, glazing, and painting, Messrs. Harker Bros.; and plastering, Mr. David Rothwell. The steam, hydraulic, and engineering arrangements throughout have been carried out by Mr. W. F. Spencer, Crossbank Works, Oldham, the whole having been executed according to the plans and under the supervision of Mr. Charles T. Taylor, architect, Oldham.

SANITARY AND ENGINEERING NEWS.

PROPOSED SHIP CANAL TO WAKEFIELD.—On the 9th inst. a conference of public bodies was held at Wakefield to discuss the question of a proposed ship canal from Wakefield to the Humber. Mr. Charles Clay, projector of the scheme, estimated the cost at 6,000,000*l.*, and said that a traffic of 2,000,000 of tonnage a year, at 3s. per ton, might be obtained. That would require an average daily traffic of some 3½ vessels of 2,000 tons each, which would not be difficult to secure. He also quoted the opinion of Mr. James Abernethy, consulting engineer to the Manchester Ship Canal, as to the feasibility of the scheme. A provisional committee was appointed.

LOCK AND WEIR, RICHMOND.—On Saturday last the Duke of York opened the new Thames lock and weir, which is situated near Richmond. The lock itself is situated on the Surrey side of the river, and is of ordinary construction, but is constructed to take six barges and a tug. The weirs occupy nearly the whole breadth of the stream, and are three in number. They are entirely movable, whilst an ordinary weir, such as that at Teddington, may be described as a step built in the river bottom, having shutters or sluices above to control the flow of water. At Richmond, according to the *Times* report, the bottom of the river is unbroken in level, the weir being, in fact, all sluice. Each sluice consists of a large steel shutter, suitably stiffened, 66 ft. wide. 12 ft. deep, and weighing 32 tons. To operate these sluices there is a double bridge above, and this is to be used as a footway connecting Richmond with St. Margaret's on the Middlesex side. The lock is a half-tide-lock—that is to say, it will only be used during the first part of the flood and the last part of the ebb; and it is during these periods that the sluices will be closed. To raise and lower the sluices there is hand-worked machinery on the bridge above, and the balancing by counter-weights is so arranged that one man will be able to carry out the operations at slow speed, or three men at a quicker rate of working. In order to overcome the effects of friction of the sluices in lifting, due to head of water or otherwise, the roller principle devised by Mr. F. G. M. Stoney has been adopted. The course of working will be as follows:—Starting at high water, when the sluices will be open, the attendant will wait until the tide has ebbed away sufficiently, and then the three sluices will be lowered until their lower edges nearly touch the bottom, thus forming a vertical wall blocking the arches of the bridge and preventing further ebb to tide. There will, however, be a sufficient space between the bottom edge of the sluices and the river bottom to pass a volume of water equivalent to that flowing over Teddington weir. It will be seen, therefore, that, so long as the sluices are down, the level of water in the reaches above them will remain constant. When the returning flood tide brings the stretch of water below the sluices to a level with that of the reach above them, the attendant will again lift the sluices, which will remain open until the tide has once more fallen to the period of half ebb. Whilst the sluices are raised—that is, when the ebb and flow are at their highest periods, and there is deepest water in the river—the navigation will be unobstructed, craft passing under the footbridges in the usual way. When the sluices block the fairway the lock will naturally be brought into requisition. The sluices are vertical shutters when down, but an arrangement has been devised to cause these shutters to lie in a horizontal plane when raised. The method of operation may be said to consist of a curved guide, by which the ends of the sluices are automatically directed, thus causing them to turn through a quarter of a circle as they ascend. When fully housed the sluices are, therefore, tucked away snugly overhead in the space between the two paths of the double footbridge. The advantage of this is twofold. In the first place, if the sluices were to remain in a vertical position they would detract greatly from the headway for passage of craft; and, secondly, they would form extremely unsightly features in the landscape. For the accommodation of the large number of pleasure-boats which throng this part of the river in summer, inclined planes, with rollers, have been constructed. The work has been carried out by the Thames Conservancy from plans by Mr. C. J. More, the engineer to that body, a part of it being let to contract. The estimated cost was 61,000*l.*

SEWAGE WORKS, HEREFORD.—The Town Council of Hereford having proposed to borrow the sum of 3,000*l.* for the purpose of the sewage disposal of the city, Colonel John Ord Hasted, R.E., Local Government Board Inspector, held an inquiry into such proposal in the Council Chamber on the 18th inst. The Town Clerk stated the case for the Corporation and said that the present work occupied 6½ acres. The time had now arrived when it was absolutely necessary to extend the filter-beds. The City Surveyor, Mr. J. Parker, then produced plans of the proposed extensions. He said that the existing works were situated in the Bartonsham meadows near the Eign railway bridge, and were laid out for chemical precipitation and intermittent downward filtration. The average daily flow of sewage was 1¼ million gallons. After giving particulars of the existing sewage disposal, he remarked that it had, however, been found difficult to give the filter-beds that rest which they required in order to do their work properly; the committee therefore proposed to purchase a site containing 17 acres of land at a cost of 2,000*l.* adjoining the existing works, which readily adapted itself to the utilisation of the existing carriers from the precipitating tanks, and was also in every way suitable for the purpose. The cart-roads would be 12 ft. wide. The existing effluent-carrier from the precipitating tanks would be extended to the new filter-beds, and the whole would be under-drained at an average depth of 4 ft. 6 in. below the surface. The drains being 11 yards apart the sizes varied from 4 in. upwards, converging from the 18-in. outlet at the inspection-chamber, adjoining the River Wye, where would be fixed a tidal flap to close against flood-water, and from thence iron and stoneware pipes would be laid to the river. The additional land would, apart from roads, provide 16 acres, which, added to the 6½ acres already in operation, made 22½ acres. The sewage of 1,000 persons per acre on such land was ample, and would provide for an increase of population of 22,500. He estimated the cost of laying-out the site in accordance with the plans, sections, and specifications handed in at 1,000*l.* The Inspector subsequently visited the works at Bartonsham.

WATERWORKS, SANDWICH.—On the 15th inst. the Mayor of Sandwich laid the foundation-stone of the building which is to contain the pumping machinery of the new waterworks at Woodnesborough. Mr. H. Roberts is the contractor, and Messrs. Easton & Anderson are the engineers. Mr. Catt is the Borough Surveyor and clerk of the works.

STAINED GLASS AND DECORATION.

WINDOW, ST. ANDREW'S CHURCH, LEYTONSTONE.—The dedication of the east window of St. Andrew's Church, Colworth-road, Leytonstone, has just taken place by the Bishop of St. Albans. The window has been erected to the memory of the late Mark Bean, by his widow. He was interested, we are informed, in every branch of the building trade in the neighbourhood during the whole of his lifetime. The window, which is three lights, is in the style of the thirteenth century, and has been designed and executed by Messrs. Young & Marten, of Stratford, E. The two sidelights being scenes from the life of St. Andrew, in five subjects, and the centre window in three subjects, the Nativity, Crucifixion, and Ascension of our Lord.

MEMORIAL WINDOW, GAYDON, WARWICKSHIRE.—A new stained-glass window has been placed in the nave of Gaydon Church, on the south side. The window consists of two lights, representing the Good Samaritan and Christ blessing little children, with a quatrefoil in the top, in which there is the figure of an angel holding a scroll, with an inscription on it. The design was furnished by Mr. William Wheildon, jun., acting on behalf of the firm of Messrs. F. Holt & Co., of the Stained Glass Works, Warwick, by whom the work was executed.

FOREIGN AND COLONIAL.

FRANCE.—The Minister of Public Works is in a few days to submit to the Chamber of Deputies the scheme for the Paris metropolitan railway. The Parliamentary railway committee has adopted, at its last sitting, the scheme for a tubular tramway, devised by M. Berlier, the engineer, to connect the Bois de Vincennes with the Bois de Boulogne.——At St. Lazare an exhibition has just been opened of 150 drawings and etchings by Paul Renouard, intended for the Tokio Museum. ——M. Falguière is executing a bust of Renan for the Institut.——M. Desruelles, the sculptor, has completed the model for the bust of Delacroix for the Museum of Versailles.——An exhibition of the paintings of Alfred Stevens is announced to be opened shortly at the Georges Petit Gallery.——The municipality of Marseilles is occupied with a scheme for bringing water from springs at Fontaine L'Evêque, which can furnish an abundant supply for all the requirements of the population. At present the town is entirely dependent on the water of the Durance.——The municipal council of St. Cloud has resolved to proceed at once with the repairing of the tower of the church, which is in a dangerous condition.——The buildings for the University of Caen will be opened early next month.——The "Société Régionale des Architectes de l'Est" of France, after six years of existence, and as the result of numerous discussions, has dissolved.——M. Pillet has been elected city architect of Blois. At St. Quentin the new "Halles," built from the designs of M. Delmas-Azéma, Director of Public Works in the town, have just been opened.——The railway stations at Tours are to be improved and united together at a cost of about 4,500,000 francs. ——Important operations are under consideration for the improvement of the Loire, with the view of rendering the river navigable at all seasons, and re-establishing permanently the communication by water-carriage between Orléans and Nancy.——The casino at Tréport is to be rebuilt and the works to be finished in time for the bathing season of 1895.——The painter Philippe Parrot, who made a distinguished reputation as a portrait painter, died at Paris a few days ago. He had received medals at the Salons of 1868, 1870, 1872, and at the Universal Exhibition of 1878. He has exhibited this year, at the Champ de Mars Salon, a fine portrait of Mdlle. Rose Caron.

GERMANY.—The Lutheran church on the Dennewitzplatz, at Berlin, was recently consecrated in the presence of the Empress. The church, which is built in the Gothic style from the plans of Professor Otzen, provides accommodation for 1,480 worshippers, at a cost of 29,000*l.* The altar, a gift of the Emperor and Empress, is decorated by reliefs of the "Last Supper," executed in marble by Haverkampf, a pupil of Schafer; the pillars in the interior are adorned with statues of the Apostles by Kokolsky. The builders are Messrs. Metzing & Held. At the recent meeting of the Evangelical Church Building Society, it was announced that the Emperor has given another 1,500*l.* towards the Emperor William Memorial Church. The society has now received nearly 120,000*l.* towards the cost of the edifice, estimated at 135,000*l.* The society has during the last five years spent 800,000*l.* on churches in Berlin and neighbourhood. Fifteen of these have already been consecrated, seven will be completed this year and eight are in process of erection.——The municipality of Treptow have decided to grant 1,250*l.* towards a new bridge over the Landwehr canal, so as to form another route to the Treptow Park in case the latter site be chosen for the 1896 exhibition. Mass meetings are being held to protest against the choosing of the Lietzensee site as being outside of Berlin. —— A recent number of "Moderne Kunst" gives some particulars of Professor Reucklake's new plans for the national monument to the Emperor William I. on the Schlossfreiheit. According to these the equestrian statue would be situated on a double terrace; the lower one, 69 mètres in length, is approached by a flight of thirty-two stairs, and seventeen more lead to the upper. The terrace and stairways occupy 2,500 square mètres, and could accommodate over 9,000 persons. Statues of the Emperor Frederick and the King of Saxony will be placed beside that of the Emperor.——Seventeen artists have sent in twenty-one models for the competition for the monumental fountain to be erected in front of the Town Hall at Stettin. The designs are to be shortly opened to public inspection at Berlin. —— The new Imperial Houses of Parliament are to be connected with the chief post-office by a pneumatic tube.——The town of Schwerin is about to erect a monument to Heinrich Schliemann, the well-known archæologist. The work will be executed by the sculptor Berwald, the author of the Bodenstedt monument at Wiesbaden.——There is to be an Industrial Exhibition at Bromberg next year.——The question of the restoration of Heidelberg Castle has again come to the front in connexion with the Baden Budget. It is once more explicitly stated that no renovation, except where rendered absolutely necessary by the decay of the fabric, will be undertaken. ——The remains of a Roman fort at Hillischeid, north-east of Coblence, have been discovered in the course of the *Limes* Investigations.

RUSSIA.—There will be a Russian National Exhibition at Nishni-Novgorod this summer, the sections comprising Trade and Industry and the Arts and Sciences. The Ministries of War, Marine, Finance, Agriculture, and Transport will take part, and it is expected the progress made in all directions since the last exhibition at Moscow, in 1880, will be

well demonstrated. The exhibition will be held on the peninsula formed by the Rivers Oka and Volga. The main building of the 1880 exhibition will be brought over from Moscow, and will serve the same purpose; in addition, there will be two large iron galleries, and numerous smaller wooden buildings.

SWITZERLAND.—The Swiss North-Eastern Railway is inviting designs for a competition for the new railway station at Zug. Premiums amounting in all to 3,000 fr. will be given.

MISCELLANEOUS.

THE SANITARY INSTITUTE.—The preliminary programme of the Fourteenth Congress of the Sanitary Institute, to be held in Liverpool in September, has now been issued. The meetings of the Congress will consist of three general addresses and lectures. Three sectional meetings, dealing with (1) Sanitary Science and Preventive Medicine; (2) Engineering and Architecture; (3) Chemistry, Meteorology, and Geology—presided over by E. Klein, M.D., F.R.S., G. F. Deacon, M.Inst.C.E., Thomas Stevenson, M.D., F.R.C.P. Five special conferences:—The Sanitation of the Passenger and Mercantile Marine Service, presided over by Sir. W. Bower Forwood, M.P. Medical Officers of Health, presided over by Charles E. Paget, M.R.C.S., D.P.H.; Municipal and County Engineers, presided over by A. M. Fowler., M. Inst. C. E.; Sanitary Inspectors, presided over by Francis Vacher, F.R.C.S., D.P.H.; Domestic Hygiene, presided over by the Lady Mayoress of Liverpool. In connexion with the Congress, an exhibition of Sanitary Apparatus and Appliances and Articles of Domestic Use and Economy will be held. Excursions to places of interest in connexion with sanitation will be arranged for those attending the Congress. The local arrangements are in the hands of a local committee, presided over by the Lord Mayor of Liverpool, with the City Engineer, Mr. H. Percy Boulnois, M.Inst.C.E., and the Medical Officer of Health, Mr. E. W. Hope, M.D., as honorary secretaries. It appears from the programme that over one hundred sanitary authorities, including several County Councils, have already appointed delegates to the Congress, and as there are 1,500 members and Associates in the Institute, there will probably be a large attendance in addition to the local members of the Congress.

PICTURES OF 1894.—We have received the "Pall Mall" book of illustrations of the pictures of the principal exhibitions of this year; and pictorial memorandum for the small sum of a shilling, though we miss some exceptionally interesting works which might well have been included.

NEW FLOORING CRAMPS.—Messrs. Lewis & Allen's two new patent forms of flooring cramp, which have been sent to us, arose from the attempt to contrive a cramp for laying floor on floor, after the joists are covered. This is achieved by having a base to the cramp with strong steel spikes placed obliquely in the direction opposite to the strain, which grip on the surface of the lower floor, while the cramp action can be applied to screwing up the upper or parquet floor. The action is applied by a screw acting on the centre of a double loose-jointed lever, which ordinarily stands with its two parts at an angle, and is flattened out by the pressure of the screw on its centre. The action is powerful and very simple, and there is nothing likely to get out of order. The same principle is applied to a cramp for use on joists, which has loose-hinged jaws with steel teeth, gripping the side of the joist. Both these cramps seem admirable implements. They are made by Mr. H. Lewis, of Reading.

FAWCETT'S FIREPROOF FLOORS. — Messrs. Fawcett & Co. write that they have found it difficult in many instances to get architects to understand the diagonal fixing of their lintels. We should think that architects who cannot understand it from the diagrams were not persons of very quick perception; but at all events, for the assistance of such, the intentees have had some small models made, and will be glad to send one of these to any architect who may wish to have one.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution on the 22nd inst., Mr. Alfred Giles, President, in the chair, two papers were read dealing with recent developments in the construction of ferry steamers. In the first communication, entitled "Recent Types of Ferry Steamers," Mr. Andrew Brown, M.Inst.C.E., described some of the most modern vessels now at work in Great Britain and in America. The second paper was on "The Birkenhead Ferry-Boats *Wirral* and *Mersey*," by Mr. Charles Jones, of Liverpool.

PFEIFFER BUILDING, NEWNHAM COLLEGE.—Messrs. Waygood & Co., ask us to mention that they have fitted the lifts in this building, illustrated by us last week.

CAPITAL AND LABOUR.

JOINERS' STRIKE AT KEIGHLEY.—The Keighley joiners came out on strike on the 21st inst. The men had given six months' notice for an advance in the rate of pay from 6¾d. to 7½d. per hour, basing their demands on the ground that they were underpaid in comparison with the other building trades. The employers offered an increase of ¼d. per hour about three weeks ago, but this was declined. The men also wish to bring about a restriction of apprentices to not more than one to five journeymen. This proposal the masters have declined to entertain, and on their part they argue that a reform is needed in the system by which all workmen, whether working in or out of town, are bound to give up in time to be at the pay-table at noon on Saturday. They propose that men working within the one-mile limit should work up to twelve. This has been rejected by the men in turn. The employers say that since the men last asked for an advance on 6¼d. per hour, three or four years ago, and when an increase was agreed to, an additional farthing has been given without demand. About 100 men are affected.

TRADE DISPUTES DURING APRIL.—The *Labour Gazette* for May says that no fewer than 113 disputes occurred during April, chiefly, however, of a local character, and of short duration. The improvement reported last month in the building trades has been maintained, the percentage of unemployed in unions connected with these trades having fallen from 3·5 to 2·8. In London the plumbers are still less busy than the other trades. 133 branches of 4 unions, with an aggregate membership of 10,314, return 440 (or 4·3 per cent.) as unemployed, compared with 5·0 per cent. last month, and 5·5 per cent. in February. In 8 societies 57 branches, with 3,647 members, describe trade as "good"; 131, with 12,763 members, as "moderate," and 69, with 7,074 members, as "bad." No less than 30 disputes took place during the month, and, as might be expected from the seasonal activity in the trade, the object in a large proportion of these disputes was to obtain increased wages, reduced hours of labour, or improved working rules. 18 were due to these causes, and 7 others were in defence of union rules and customs.

MEETINGS.

FRIDAY, MAY 25.

Architectural Association.—(1) Mr. Arthur Bolton on "The Practical Side of Travelling." (2) Election of Officers. 7.30 p.m.

SATURDAY, MAY 26.

St. Paul's Ecclesiological Society.—Visit to The Church of St. Saviour, Southwark, at 3.30 p.m., under the guidance of Mr. G. H. Birch, F.S.A.

Queen's College, Cork.—**Mr. Arthur Hill on "The History of Architecture." XIX. 3 p.m.**

MONDAY, MAY 28.

Royal Institute of British Architects.—Mr. J. Tavenor Perry on "The Influence of the Hanseatic League on the Architecture of Northern Europe." 8 p.m.

TUESDAY, MAY 29.

Institution of Civil Engineers.—Annual General Meeting of Corporate Members only, to receive the Report of the Council, and to elect the Council and Auditors for the ensuing year. 8 p.m.

WEDNESDAY, MAY 30.

Carpenters' Company (Lectures on Carpentry and Joinery).—Mr. John Slater on "Timber; its Decay, Preservation, and Use; also Strength and Strains in Wood." 8 p.m.

THURSDAY, MAY 31.

Architectural Association.—Annual Dinner, Holborn Restaurant. 7 p.m.

Royal Institution.—Mr. W. M. Flinders Petrie on "Egyptian Decorative Art." II. 3 p.m.

Society of Antiquaries.—8 30 p.m.

SATURDAY, JUNE 2.

Incorporated Association of Municipal and County Engineers.—Western Counties' District Meeting, to be held at Torquay.

Queen's College, Cork.—**Mr. Arthur Hill on "The History of Architecture." XX. 3 p.m.**

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

7,906.—WATER-CLOSETS: *T. A. Harris.*—This patent relates to improvements in water-closets, consisting of two or three short artisan closet-pans, with traps combined, provided on the outside with flanges fitted on another flange at the top of each opening formed in a long trough, with a red lead joint. The trough is oval in section, with a flushing cistern connected at one end and the outlet, over a ledge and thence to sewer. The trough is constructed in pieces, with joints cemented together, and when fixed is partly embedded in concrete. Water waste preventers are also fitted.

9,289.—FIREPROOF STAGES: *W. Hargreaves.*—According to this invention special construction of the stage and approaches is provided, and in addition water and automatic spreaders are employed to extinguish the fire, should one break out.

10,878.—WINDOWS, CASEMENTS, DOORS, &c.: *W. W. Batley.*—The invention is designed to overcome the objections pertaining to casements or windows which open into the room or building, and to render them equally serviceable in keeping out the rain and wind as are sliding sashes. This is effected without altering or departing from the ordinary method of hanging such casements on fixed hinges.

11,050.—WINDOW GUARDS: *J. C. Meyer.*—The window guard (which always fills the opening beneath the lower sash) is placed between the lower edge of the bottom sash and the window-frame. It consists of a pair of rods pivotally secured to the two corners of the sash and adapted to be received by two tubes pivotally secured to the two diagonally opposite corners of the frame.

11,727.—PAINT: *W. C. Nangle.*—A paint for use on iron hot-water pipes, which may be employed when the surface is hot, is made by mixing tar, sulphur, and other ingredients. It is claimed to be anti-fouling and suitable for ships' bottoms.

1,203.—DOOR STOP: *W. Taylor.*—To prevent the knobs or handles of the door doing damage to a wall when flung open, a device consisting of a cylinder, with an elastic cushion at the back of the piston, is fixed or fitted into the wall, so that the handle does no damage, but enters the receptacle prepared for it.

3,289.—WOOD INLAY: *G. J. Money.*—A solid ornamental wood pattern for panels, flooring, &c.; is made by cutting grooves laterally in a board with strips of fancy wood glued therein. The board is then cut through longitudinally, and the cut pieces placed together and glued so that the fancy wood strips are made into squares, diamonds, &c.

5,051.—PORTABLE ALARM FASTENINGS FOR DOORS: *T. Woodard.*—A small wedge-shaped contrivance with a hammer and pin or nozzle, on which percussion caps may be placed, is used, so as to give an alarm when the door is forced.

5,265.—FOLDING-GATES: *W. R. Pitt.*—These are gates which close up by means of sliding pieces and links which open out as the gate is drawn out. The rivets are fixed so as to act in a somewhat similar manner as the platform for toy soldiers, opening and closing by extension.

NEW APPLICATIONS FOR LETTERS PATENT.

MAY 7.—8,984, W. Mann and J. Pullan, Pressing Bricks, Tiles, &c.—8,997, F. Hitchmough, Sash Stop.—9,011, J. Meyer, Window Guards.—9,045, H. Dakin, Water-closets, Sinks, and Urinals, and Pipe Connexions therefor.

MAY 8.—9,100, F. Woodhouse, Air Filter for Continuous Ventilation.—9,107, H. Lewis, Apparatus for Breaking up Streets and Roads.—9,111, N. Tailby, Wood-planing Machines.—9,132, A. McLean, Jun., Decorative Wall-surfaces.

MAY 9.—9,146, R. Whitaker, Stays for Step-ladders and other Hinged Articles.—9,147, J. Gittings and others, Joint for Sheet Metal.—9,171, W. Whitley, Sliding Windows or Sashes.—9,189, J. Jones and others, Water-waste Preventers or Flushing Apparatus.—9,191, J. Lees and A. Sheffield, Water-closets, Urinals, &c.—9,208, J. McCabe, Travelling Hangers for Doors, Gates, &c.—9,210, E. Cramer, Kilns.

MAY 10.—9,224, R. Duncan and J. Graham, Safety Fastenings for Windows.—9,228, T. Holmes, Glue-brush Cleaner.—9,235, A. Turley, Sewer Pipe or Tube.—9,237, H. Sutcliffe, Syphon Cisterns.—9,246, T. Taylor, Bond or Tie for Ordinary and Cavity Walls.—9,251, J. Brider, Window Sashes and Frames.—9,253, L. Rintoul, Hinge.—9,254, J. Howie, Water-closets.—9,264, H. Thrift, Draught-preventer for Window Sashes, &c.—9,271, W. James, Casement Window.

MAY 11.—9,316, C. Barras, Fireproof Hearths.—9,352, H. Chubb, Waste-preventing Flushing Cisterns for Water-closets.—9,378, T. Pink, Bolts for Doors, Windows, &c.

MAY 12, 9,415, F. Lynde, Clearing Drain and other Pipes.—9,435, V. Knowles, Ventilator.—9,455, R. Hauers, Preservation or Treatment of Buildings, Structures, &c., from Dirt and Decay.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,913, Window-cleaning Chairs and Window Cleaners' and Painters' Platforms.—7,129, R. Matthews, Whitelead.—7,501, R. Hall and J. Twigg, Wood-fencing or Trellis Work.—7,535, W. Wilks, Glazing Nail for Fixing Glass in Greenhouses, &c.—7,937, R. Yorke, Metal Pipes.—8,032, S. Holman, Heating and Ventilating, more especially intended for use in creating currents for the Ventilation of Sewers and Disinfecting Foul Air and Gases issuing therefrom. — 8,088, E. Howl, Kilns. — 8,090, J. and W. McLoughland, Swivelling Windows.—8,139, F. Hoar, Fire Escapes.—8,147, G. Walker, Treating Fibrous Material for Ornamental or Decorative Purposes.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

12,028, P. Jones, Clamp.—12,791, E. Edwards, Paint.—13,598, J. Fisher, Concrete and similar Pavement and Floorings.—6,591, C. Heinzerling and A. Höxter, Bricks and Brickwork.

SOME RECENT SALE OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 10.—By *Wilkinson, Son, & Welch* (at Brighton): 9, Buckingham-rd., Brighton, f., 1,050*l.*

MAY 15.—By *E. & H. Lumley:* "The Hill," Witley, Surrey, and 10 acres, f., 10,000*l.*—By *Wagstaff & Warman:* 43, Balfour-rd., Highbury, u.t. 55 yrs., g.r. 6*l.* 6s., 320*l.*; 145, 147, 149, 151, 160, Percy-rd., Shepherd's Bush, u.t. 69 yrs., g.r. 50*l.*, 515*l.*—By *W. Sutherland:* 31, Lausanne-rd., Hornsey, f., r. 32*l.*, 415*l.*; 15, Frithville-gardens, Shepherd's Bush, u.t. 79 yrs., g.r. 8*l.*, r. 36*l.*, 285*l.*; 18, Edward-st., Dorset-sq., u.t. 27 yrs., g.r. 12*l.* 12s., r. 32*l.*, 180*l.*; 48, Hereford-st., Marylebone, u.t. 25 yrs., g.r. 10*l.* 10s., 115*l.*; 13, 14, Meyrick-ter., Willesden, u.t. 95 yrs., g.r. 11*l.*, 255*l.*

MAY 16.—By *J. Douglas:* 1, 3, and 5, Church-rd., Barnes, u.t. 82 yrs., g.r. 15*l.*, r. 100*l.*, 1,000*l.*—By *F. E. Eiloart:* 5, 6, St. Ann's Villas, Notting Hill, u.t. 50 yrs., g.r. 20*l.*, r. 78*l.*, 460*l.*; 8, 20, 22, St. Ann's Villas, u.t. 50 yrs., g.r. 30*l.*, r. 130*l.*, 690*l.*—By *J. Dawson & Son:* "The Priory," West Molesey, and 7 acres, f., 1,500*l.*—By *T. G. Wharton:* 37, Bennett Pk., Blackheath, u.t. 58 yrs., g.r. 10*l.* 10s., r. 48*l.*, 455*l.*; 9, 11, Barnmead-rd., Beckenham, u.t. 82 yrs., g.r. 16*l.* 8s., r. 100*l.*, 940*l.*—By *J. H. Bethell:* 7, Stopford-rd., West Ham, f., r. 36*l.*, 455*l.*; 10, Rayner-ter., Stratford, f., r. 50*l.*, 700*l.*; 17, 19, Gipsy Lane, Upton Pk., f., r. 60*l.*, 800*l.*; 116, 118, Studley-rd., f., r. 42*l.*, 435*l.*—By *S. Betts:* Nos. 60, 61, 62, 62A, and 62B, Shoreditch, f., r. 200*l.*, 4,250*l.*; 1, 2, Bethnal Green-rd., f., r. 210*l.*, 3,210*l.*; 408, Bethnal Green-rd., u.t. 15 yrs., g.r. 10*l.*, r. 80*l.*, 530*l.*; 6, Ferncliffe-rd., Dalston, u.t. 66 yrs., g.r. 6*l.*, r. 34*l.*, 355*l.*; 212, 214, Victoria Pk.-rd., Hackney, u.t. 72 yrs., g.r. 9*l.*, r. 56*l.*, 500*l.*

MAY 17.—By *Reynolds & Eason:* 11, Holywell Row, Shoreditch, f., 465*l.*; 17, 18, Holywell Row, f., r. 100*l.*, 1,230*l.*; 9, Holywell Row, f., r. 32*l.*, 300*l.*; 93, 95, Norfolk-rd., Dalston, u.t. 55 yrs., g.r. 13*l.* 15s., 550*l.*—By *H. M. Ellis:* 26, Oberstein-rd., St. John's Hill, S.W., u.t. 68 yrs., g.r. 8*l.*, r. 35*l.*, 280*l.*—By *J. A. Trythall:* 36, Granfield-st., Battersea, u.t. 72 yrs. g.r. 4*l.* 5s., 140*l.*—By *Nokes & Nokes:* 82, Broke-rd., Haggerston, u.t. 50 yrs., g.r. 4*l.*, r. 24*l.*, 235*l.*—By *Newbon & Co.:* 72, Cumming-st., Pentonville, u.t. 24 yrs., g.r. 5*l.* 5s., 115*l.*; 4, 5, York-st., u.t. 71 yrs., g.r. 30*l.*, 540*l.*; 14, Shaftesbury-rd., Hornsey, u.t. 74 yrs., g.r. 6*l.* 10s., 290*l.*; 41, Bingfield-st., Caledonian-rd., u.t. 47 yrs., g.r. 4*l.* 10s., r. 34*l.*, 330*l.*; 54, Pembroke-st., u.t. 56 yrs., g.r. 4*l.* 4s., r. 31*l.*, 295*l.*; 396, 398, Caledonian-rd., u.t. 46 yrs., g.r. 12*l.*, r. 88*l.*, 855*l.*; "Pleasant Cottage, Halton Cross, Islington, u.t. 17 yrs., r. 39*l.*, 95*l.*—By *Stimson & Sons:* 114, 118, 122, Warner-rd.,

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Laying-out Ground, &c.	Bristol Finance Com.	50*l.* 30*l.* 20*l.*	July 5
Offices, Fire Engine Station, &c.	Littleborough (Lancs.) Loc. Bd.	25*l.* 15*l.*	July 10

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Hospital Buildings, West Heath	King's Norton R.S.A.	R. Godfrey	May 29
Seven Almshouses, Coggeshall, Essex	...	P. M. Beaumont	do.
House, Drighlington, Yorks.	...	F. W. Ridgway	do.
Pipe Sewer (760 yards)	Runcorn Impt. Com.	*Official*	do.
*Cast-iron Pipes	Burton-upon-Trent Corp.	do.	do.
*Road Works	Bromley Local Board	do.	do.
*Making-up Roads	Tottenham Loc. Bd.	P. E. Murphy	do.
*Band Stand	do.	do.	do.
*Cast-iron Water Pipes	do.	do.	do.
House, Irchester, near Wellingborough	Mr. Bowen	J. E. Cutlan	May 30
Bridge, Nineveh-road	Handsworth (Staffs.) Local Board	E. Kenworthy	do.
Sewering, Channelling, &c. Putney-road	do.	do.	do.
Offices and Shops, Mulcture Hall-road	Halifax Corporation	W. H. D. Horsfall	do.
Extension to Hospital, Llanelly	Committee	E. M. Bruce Vaughan	do.
Shop, Caerphilly, Wales	...	J. H. Phillips	do.
House and Shop, Storrington, Sussex	...	Wm. Buck	May 31
Residence, &c. Grange-over-Sands	...	J. Stalker	do.
Mission Hall, Tredegar, Mon.	...	A. Barrett	do.
Wall, Gates, &c. Cattle Market-road	Peterborough T. C.	J. W. Walshaw	do.
*Drainage and Sanitary Works, Workhouse	Greenwich Union	T. Dinwiddy	do.
School Buildings	Pucklechurch (Glos.) School Board	W. L. Bernard	do.
Laundry and Engine House, &c.	Dewsbury Union	Holtom & Fox	do.
Premises, New Bridge-street, Truro	Jas. Radmore	Wm. Swift	do.
House, the Bailey, Bewcastle, Cumberland	Mr. Armstrong	...	do.
Alterations to Police Station, Aberdare	Glamorgan C.C.	*Official*	do.
*Iron Railings and Gates	Ramsgate Town Coun.	do.	do.
*Cleansing and Painting Works, Bristol and London	Midland Railway Co.	do.	June 1
Cottage, &c. Laraghbryan, near Maynooth, Ireland	Celbridge Union	do.	do.
Sewering and Roadmaking, Ball Haye-road	Leek (Staffs.) Corp.	do.	do.
*Portland Cement	Brighton Town Coun.	F. J. C. May	do.
Mission Room, St. Paul's Church, Gateshead	...	Oliver & Leeson	do.
Two Houses, Camden-street, Belfast	...	C. V. Chevers	do.
School Buildings, Downham Market, Norfolk	Trustees	...	do.
Enlargement of School, Wickford, Essex	...	F. Whitmore	June 2
Drill Hall, Eastgate, Barnsley	...	H. Crawshaw	do.
Vicarage House, Tylorstown, Glam.	Rev. Jno. Rees	E. M. Bruce Vaughan	do.
Additions to Schools, Lower Llanfoist, Wales	Llanfoist School Board	E. Foster	do.
*Additions to Purifiers House, &c.	Sheffield United Gas Light Co. Lim.	F. W. Stevenson	do.
Stone Wall, &c. Warrington-road	Ince (Wigan) Loc. Bd.	*Official*	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Station Buildings, Banchory, Aberdeen	G. N. of Scotland Ry. Co.	*Official*	June 4
Drainage (2,750 yards), Falkirk	Stirlingshire C.C.	Warren & Stuart	do.
*Stoneware Pipe Sewers, &c.	Teddington Local Bd.	H. York	do.
*Gas Engines and Pumps, &c.	Worthing Corp.	J. Mansergh	do.
*New Wing to Hospital	West Ham Hospital Committee	Lewis Angell	do.
Fifteen Houses, West Bowling, Bradford, Yorks	...	Brayshaw & Dixon	do.
Schoool Buildings	Neath T. C.	D. M. Jenkins	June 1
*Road Materials	Acton Loc. Bd.	D. J. Ebbetts	do.
*Additions and alterations to Schools	Brighton and Preston Sch. Bd.	T. Simpson & Son	do.
Additions to Railway Station, Shepton Mallett	G.W.Ry. Co.	*Official*	do.
Railway Station, Tondu, Glam.	do.	do.	do.
*Making-up Roads, &c.	Hove Commissioners	do.	June 4
Flags (800 yards), North-road	Ravensthorpe (Yorks.) Loc. Bd.	T. Hemingway	do.
*Scavenging, Dusting, and Watering	St. Matthew's Vestry, Bethnal Green	T. W. Barratt	June 7
School Buildings, Burnt Tree	Tipton Sch. Bd.	A. Long	do.
Granite Road Metal (1,000 tons)	Poole T.C.	Jno. Elford	do.
Steel Bridge, with Masonry Piers, Maryculter, near Aberdeen	...	Jas. Barron	do.
Destructor Cells, &c. Smithdown-road, near Liverpool	Toxteth Park Loc. Bd.	Jno. Price	June 8
Additions, &c. to Schools, New Tredegar	Bedwellty Sch. Bd.	James & Morgan	June 11
*Road Works	Hornsey Loc. Bd.	T. de Courcy Meade	do.
*Disinfecting Houses, and other Works	Barking Town Loc. Bd.	C. J. Dawson	June 12
*Electric Lighting Station	Coventry Corporation	G. & I. Steane	June 13
*Library and Technical School	Borough of St. Helen's	Briggs & Wolstenholme	do.
*Sewerage and Sewage Disposal Works	Horfield Loc. Bd. and Barton Regis R.S.A.	A. P. J. Cotterell	do.
*Portland Cement	Bailiff of Level of Romney Marsh	*Official*	June 15
*Painting Works, &c. Caterham Asylum	Met. Asylums Board	S. Overend	do.
*Enlargement of P. O., Stockton-on-Tees	Com of H.M. Works	*Official*	June 18
*Additions to School	West Thurrock Sch. Bd.	T. J. Sturdy	June 19
*Two Cottages, near Romford	Parish of St. Leonard, Shoreditch	T. J. Smith	June 20
*Painting Works, &c. Gosport	War Department	*Official*	No date
*Painting, &c. Works, South Aldershot	do.	do.	do.
Villa Residence, Knock, Belfast	...	Thos. Pentland	do.
Rebuilding Waggon and Horses Hotel, Chorley, Lancs.	...	Heaton & Ralph	do.
Four Cottages, Armley New-road, Leeds	Messrs. Longley	...	do.
Three Houses and Shop, Webster-street, Bradford, Yorks	...	J. A. Finsdale	do.
*Erection of The Princes, Blackpool	The Directors	J. D. Harker	do.
*Two-Storey Houses, Brixton	...	W. Daniell	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Three Sanitary Inspectors	St. Mary, Newington, Vestry	100*l.* &c.	June 4
*Sanitary Inspector	St. Pancras Vestry	120*l.* &c.	June 4
*Four Diocesan Surveyors	Diocese of York	...	No date

Those marked with an asterisk (*) are advertised in this Number. Competition, p. iv. *Contracts, pp.* iv., vi., vii., *and* viii. *Public Appointments, p.* xviii. *and* xxi.

Camberwell, f., 1,280*l.*; 149, 151, Commercial-rd., Peckham, u.t. 46 yrs., g.r. 8*l.*, r. 60*l.*, 550*l.*; stabling, Radnor-yd., Bird in Bush-rd., u.t. 46 yrs., no g.r., r. 34*l.*, 400*l.*; i.g.r. of 21*l.* 9s., Radnor-st., u.t. 45 yrs., g.r. 16*l.*, 95*l.*; 11, Linden Grove, u.t. 54 yrs., g.r. 6*l.*, 260*l.*; 56 to 64 even, Camden Grove North, u.t. 67 yrs., g.r. 14*l.*, 720*l.*; 56, Netherwood-rd., Shepherd's Bush, f., r. 60*l.*, 620*l.*; 17, 19, Hartham-rd., Holloway, u.t. 63 yrs., g.r. 16*l.* 16s., r. 89*l.*, 700*l.*; 14, North-rd., u.t. 66 yrs., g.r. 7*l.*, r. 32*l.*, 250*l.*; 109, St. John's-st.-rd., Clerkenwell, u.t. 35 yrs., g.r. 10*l.* 10s., r. 60*l.*, 465*l.*; 3, 4, Uxbridge-villas, Dulwich, u.t. 87 yrs., g.r. 13*l.*, r. 56*l.*, 355*l.*; 23, 25, 27, Hither Green-lane, Lewisham, u.t. 73 yrs., g.r. 15*l.*, 250*l.*

MAY 18.—By *Slade & Butler:* "Briar Mount," Harestone Valley-rd., Caterham, with grounds, f., 1,600*l.*—By *Baker & Sons:* 3, 4, Pitt-ter., Harrow, f., r. 100*l.*, 1,600*l.*; 34, Delamere-cres., Paddington, u.t. 56 yrs., g.r. 21*l.*, 200*l.*; f.g.r. of 5*l.*, White-st., Bethnal Green, reversion in 13 yrs., 440*l.*; f.g.r. of 3*l.* 10s., ditto in 23 yrs., 105*l.*; f.g.r. of 13*l.* 11s. 2d., ditto in 24 yrs., 360*l.*; 2, 4, Ramsey-st., f., 700*l.*; a plot of f. land, Ramsey-st., 115*l.*; seven plots of f. land, Cheshire-st., 890*l.*; 38, Cheshire-st., f., 200*l.*—By *Green & Son:* "Oakwood," Crawley, Sussex, and 9 a. 1 r. 10 p., f., 2,200*l.*; three enclosures of f. land, Knockwood, Kent, 22 a. 3 r. 37 p., 440*l.*—By *Jones, Lang, & Co.:* 1 to 8, Beaumont-st., Uxbridge-rd., f., 1,395*l.*; 32, Norland-rd., f., r. 55*l.*, 1,050*l.*; 33 to 37, Norland-rd., f., r. 200*l.*, 3,705*l.*; 28, 30, 31, Norland-rd., u.t. 50 yrs., g.r. 24*l.*, r. 120*l.*, 1,360*l.*; 1 to 4, St. George's-rd., u.t. 50 yrs., g.r. 16*l.*, r. 116*l.*, 810*l.*; 5, 6, 7, St. George's-rd.. u.t. 50 yrs., g.r. 15*l.*, r. 99*l.*, 750*l.*; 59, 63, 67, 69, 73, 75, and 77, Queen's-rd., u.t. 50 yrs., g.r. 28*l.*, r. 174*l.*, 1,155*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street.; rd. for road; sq. for square; pl. for place; ter. for terrace cres. for crescent yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/0/0 16/0/0
Sequoia, U.S.ft.cu		2/3 2/6
Ash, Canada	load	2/15/0 4/0/0
Birch, do.		2/5/0 3/10/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/5/0 3/5/0
Oak, do.		2/10/0 4/15/0
Canada		5/10/0 7/0/0
Pine, Canada red		2/10/0 3/0/0
Do. Yellow		2/10/0 4/15/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		2/5/0 4/10/0
Odessa, crown		2/5/0 4/10/0
Deals, Finland 2nd & 1st std	100	8/0/0 10/10/0
Do. 4th & 3rd		7/10/0 9/0/0
Do. Riga		7/10/0 9/0/0
St. Petersburg, 1st yellow		10/0/0 13/10/0
Do. 2nd yellow		8/0/0 9/0/0
Do. white		8/10/0 11/0/0
Swedish		8/10/0 16/10/0
White Sea		8/0/0 16/10/0
Canada, Pine 1st		22/10/0 29/0/0
Do. do. 2nd		17/0/0 18/0/0
Do. do. 3rd, &c.		7/10/0 10/5/0
Do. Spruce, 1st		9/0/0 11/0/0
Do. do. 3rd & 2nd		6/10/0 7/10/0
New Brunswick		6/0/0 7/5/0
Battens, all kinds		9/0/0 15/0/0
Flooring boards, sq., 1 in. prep. 1st		0/10/0 0/15/0
Do. 2nd		0/7/6 0/12/0
Other qualities—		0/5/0 0/7/0
Cedar, Cuba .. ft.		/3½ /4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba		/3½ /6
St. Domingo, cargo av.		/3 1/6
Mexican do. do.		/3 /4
Tobasco do. do.		/3½ /6
Honduras do.		/3½ /5½
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio		7/0/0 18/0/0
Bahia		6/0/0 17/0/0
Satin, St. Domingo		0/0/6 0/1/0
Satin, Porto Rico		0/0/6 0/1/6
Walnut, Italian		0/0/3½ 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/1/5½ 0/0/0
Bar, Welsh, in London		5/17/6 6/0/0
Do. do. at works in Wales		5/7/6 5/10/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		41/0/0 41/10/0
Best selected		42/0/0 42/10/0
Sheets, strong		51/0/0 0/0/0
Chili, bars		39/0/0 39/5/0
YELLOWMETALlb		0/0/4½ 0/0/5
LEAD—Pig, Spanish	ton	9/2/6 0/0/0
English com. brands		9/3/9 0/0/0
Sheet, English, 6 lbs. per sq. ft. and upwards		10/15/0 0/0/0
Pipe		11/5/0 0/0/0
ZINC—English sheet	ton	19/0/0 19/0/0
Vieille Montagne		19/10/0 0/0/0
TIN—Straits		71/12/6 72/2/6
Australian		72/0/0 72/10/0
English Ingots		75/10/0 76/0/0
Banca		76/10/0 77/0/0
Billiton		72/10/0 73/0/0

OILS.

Linseed	ton	20/15/0 21/0/0
Cocoanut, Cochin		28/10/0 29/0/0
Do. Ceylon		24/5/0 0/0/0
Palm, Lagos		23·10/0 0/0/0
Rapeseed, English pale		21/10/0 22/0/0
Do. brown		19/10/0 19·15/0
Cottonseed ref.		21/0/0 21/15/0
Oleine		22/0/0 24/0/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/0/0 12/0/0
TAR—Stockholm	barrel	0/22/0 0/0/0
Archangel		0/11/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN.—Accepted for additions to Crathes Castle, for Sir Thomas Burnett, Bart., of Leys. Messrs. Brown & Watt, architects, Aberdeen:—

Mason.—George Wilson, Banchory	£1,520 0 0
Carpenter.—W. Duguid & Son, Ballater	448 0 0
Slater.—Sam. Christie, junr., Dyce	53 10 0
Plasterer.—Rodger & Baxter, Aberdeen	151 0 0
Plumber.—James Monro, Aberdeen	134 13 11
Painter & Glazier.—G. Donald & Son, Aberdeen	25 0 0

AMERSHAM (Bucks).—For the erection of twelve small villa residences at Amersham Station, for Mr. J. Sladen, Amersham. Mr. Guest Luckett, architect, Virginian Cottage, Aylesbury:—

T. Martin	£2,770 0	Honour & Son	£2,476 0
Kimberley	2,662 0	Abbott & Son	2,370 0
Darlington	2,600 0	Bailey	2,348 0
Gibson	2,588 0	A. Mead	2,300 0
Hunt	2,563 0	Wallis & Son	2,255 0
Darvell	2,535 0	Stone & Mead	2,149 3
Fincher	2,497 0	Jewell	1,650 0

AMERSHAM (Bucks.).—For the erection and completion of a house at Coleshill, Amersham, for Mr. T. A. Howland, 55, Great Portland-street, Cavendish-square, W. Messrs. G. Head & Co., architects, 7, Upper Baker-street, N.W.:—

Hall, Bedall, & Co.	£8,850	Webster & Cannon	£7,100
Allen & Son	7,875	Darlington, Amersham*	6,700
Bywaters	7,848	* Accepted.	

BARNSLEY.—For the construction of a small steel lattice girder bridge, on the sewage farm, Burton Grange, for the Corporation. Mr. J. Henry Taylor, C.E., Borough Surveyor, St. Mary's-place, Barnsley:—

Masonry and Excavation.

Duncan & Jones, Stairfoot, near Barnsley*	£84 10 0

Steel, Iron, and Metalwork.

Wm. Arnold & Co., Barnsley	137 0 0
Charles Bailey, Dewsbury*	135 16 6

Masonry, Excavation, Steel, Iron, and Metalwork complete.

Wm. Radcliffe, Sheffield	231 6 0

* Accepted.

BELFAST.—For the erection of the New National Bank and manager's residence. Mr. William Batt, architect, Royal-avenue. Quantities by Mr. S. C. Hunter, surveyor:—

John Smith	£16,079	W. J. Campbell & Son	£14,950
Robert Corry	15,000	H. & J. Martin, Ltd.*	14,75
	[All of Belfast.]		

* Accepted.

BEXLEY.—For the erection of a pair of cottages at Vale Mascal, Bexley, Kent, for the Rev. P. R. Egerton. Messrs. Milner & Hall, architects, 77, Chancery-lane, W.C.:—

Turtle & Appleton	£864	John Otway	£88
H. Dunn	695	Stebbings & Pannett	65

BIDEFORD.—For the erection of science, art, and technical school buildings, for the Corporation. Mr. G. Malam Wilson, architect, Bridge Buildings, Bideford. Quantities by the architect:—

James Julian	£2,768 19	Thomas Backway, Bideford*	£1,89
James Lamerton	2,344 5	* Recommended for acceptance.	
Edmund Ellis	2,129 0		

BLACKPOOL.—Accepted for the erection of an ice stores at Blackpool, for the Blackpool Pure Ice and Cold Storage Company, Limited. Messrs. Maxwell & Tuke, architects, Manchester:—

J. Fielding & Sons, Blackpool	£1,130 0 0

BRADFORD (Yorks.).—For the execution of drainage works at the schools, Thorpe, Idle, for the School Board. Messrs. Kendall & Bakes, architects, Calverley Chambers, Victoria-square, Leeds. Quantities by the architects:—

J. Thornton & Son, Idle, near Bradford	£139 10 0

BRIGHTON.—For providing and fixing cast-iron gates, fences, &c., Southdown Recreation ground, for the Town Council. Mr. F. J. C. May, M.Inst.C.E., Town Hall, Brighton:—

The Albion Iron Co.	£729 10	Newton, Chambers, & Co.	£53
Hill & Smith	651 18	Pixley, Sims, & Co., Ltd.	526
J. W. Caulfield	580 0	W. Lucy & Co., Oxford*	505
C. G. Reed & Son	575 0	* Accepted.	

BRISTOL.—For additions, &c., to Dr. Bell's National School, Fishponds, for the Rev. Henry Proctor. Mr. Wm. L. Bernard, architect, 3, St. Stephen's Chambers, Baldwin-street, Bristol. Quantities by architect:—

J. Bastow	£1,225	W. Brock & Son	£1,0
J. Browning	1,170	J. Perrott	1,0
Hatherly & Carr	1,145	E. Love	9
R. Wilkins & Sons	1,119	E. Clark	9
E. Walters	1,100	J. Perkins	9
Bale & Westlake	1,095	G. Humphreys, Bristol (accepted)	8
W. Cowlin & Son	1,070	H. A. Forse	9
J. E. Davis	1,068		

BRISTOL.—For the erection of school buildings, Queen Anne road, Barton Hill, for the School Board. Mr. F. Bligh Bond, architect, Liverpool-chambers, Corn-street, Bristol. Quantities by Mr. W. L. Bernard, St. Stephen's Chambers:—

Eighteen tenders received—the lowest, that of Mr. John Perrott, of Bristol, accepted subject to modifications, bringing the contract price to £5,457 10s.

CHARLBURY (Oxon.). — Accepted for alterations and additions to Sandford Hill House, for Mr. F. W. P. Martin. Mr. Ernest R. Barrow, architect, 7, John-street, Adelphi, London, W.C.:—

Burdan	£834 11 0

CHELMSFORD.—For erecting three cottages in Wolsey-street. Mr. Rd. Mawhood, architect:—

W. Fincham	£592	W. Samms, Chelmsford*	£5
E. Saltmarsh	530	J. Norrington	4
E. West	495	* Accepted.	

CHESHUNT (Herts.).—For the execution of 3,200 yards pipe ..., Goff's Oak, for the Local Board. Mr. Saml. Towlson, sur... Turner's-hill, Cheshunt :—

... & Son	£2,540	J. Dickson	£1,653
...kinson Bros.	2,479	T. Adams	1,645
...Bowley	2,085	J. Neave	1,639
... & Co	1,975	G. Bell	1,614
...ley & Sons	1,851	W. Lawrence	1,599
...Jackson	1,790	W. Nicholls	1,591
...Benton	1,765	W. Griffiths	1,550
...Bros.	1,758	M. S. Kitteringham, Sonning (accepted)	1,517
...Ashback	1,677	O. H. Porter	1,490
...Fingey & Co	1,674		

CHESHUNT.—For the erection of six villa residences, for Mr. ...cher, Cheshunt. Mr. James Bunce, surveyor, Turner's Hill, ...shunt :—

...eland & Gale	£4,320	Bayford*	£3,800
...oughton*	4,300	Milling	3,500
...ite	4,213	Pitcher*	3,209

[Surveyor's estimate, £3,500.]
* Too late.

CHISLEHURST.—For the erection of a vicarage at Chislehurst, ... the Annunciation Vicarage Committee. Mr. Chas. H. M. ...ham, architect, 1, Lincoln's Inn-fields, W.C. :—

...Storey & Co.	£2,205	John Otway	£1,682
...Bentley & Son	1,693		

COLERAINE (Londonderry).—Accepted for building new houses ...Captain-street, Coleraine, for Mr. John Parker. Messrs. W. & M. ..., architects, Coleraine :—
Alexander Higgins, Coleraine £680 0 0

COLERAINE.—Accepted for buildings at Captain-street, ...eraine, for Mr. John McAllister. Messrs. W. & M. Given, archi... :—
William Douglas, Coleraine..... £289 18 0

COLERAINE.—Accepted for alterations and repairs to Messrs. ...fords & Co.'s premises, Diamond, Coleraine. Messrs. W. & M. ..., architects :—
William Douglas, Coleraine £229 14 0

COLERAINE.—Accepted for alterations and repairs to premises ...Church-street, Coleraine, for Mr. W. J. Baxter. Messrs. W. & M. ..., architects :—
Alexander Maxwell & Co., Coleraine..... £128 0 0

DESBOROUGH (Northamptonshire).—Accepted for the supply ...0 tons broken granite and 50 tons of slag road-metal, for the ...al Board. Mr. Oliver Pemberton, Surveyor, Local Board ...ers, Desborough :—
Ellis & Everard, Harboro. ....9s. per ton.

DUNCHURCH (Warwick).—For the construction of new sewers ...d laying out a sewage farm at Dunchurch, in the county of ...rwick, for the Rural Sanitary Authority of the Rugby Union. ... T. W. Willard, Surveyor to the Authority, St. Andrew's ...mbers, Market-place, Rugby :—

...ston	£1,113 7 0	Law	£610 0 0
...ton	698 0 0	Hewitt	599 9 4
...owell	628 0 0	J. Young, Rugby*	596 0 0

* Accepted.

ELTHAM.—For the erection of a house and laundry at New ...am, for Mr. Stannard. Mr. Peter Dollar, architect, "The ...e House," Arundel-street, Charing Cross, W.C. :—

...Nightingale	£893	Knight	£769
...ic	860	Otway	764
...&Kent Building Co.	849		

EXETER.—For additions, &c., to the Devon and Somerset ...ms. Mr. W. H. Veysey, architect, 14, Bedford-circus, Exeter :—

...ith & Son	£4,489	Setter Bros.	£3,810
...ford	4,250	Martin	3,807
...combe & Son	4,200	Tree & Bolley	3,797
...ecott & Austin	4,135	Stephens	3,690
...	4,100	Ham & Passmore, St. Sidwells, Exeter*	3,687
...ckett	3,877	Brealey	3,400
...son	3,867		

* Accepted.

FARNHAM.—For decorations and structural alterations at "The ...elands," for General W. H. Beynon, of 25, Ashburn-place, S.W. ... F. Monier Williams, architect :—

...ris, Wells, & Co.	£1,693	Jno. Anderson, South Kensington*	£920
...upsett & Kingham	969		

* Accepted with modification.

GOOD EASTER (Essex).—For erecting three cottages. Mr. R. ...Mawhood, architect, Chelmsford :—

...Joyner	£385 10	J. Norrington	£330 0
...Harman	305 0	W. Drewry	318 10
...Gamms	355 0	W. Baker, Danbury*	315 0
...West	350 0		

*Accepted.

GOOD EASTER.—For new farmhouse. Mr. R. Mawhood, ...itect, Chelmsford :—

...Moss & Co.	£600 0 0
...J. Norrington, Broomfield (accepted)	448 10 0

HORSFORTH.—Accepted for the erection of a Wesleyan Chapel, ...Outside. Messrs. Fairbank & Wall, architects, Craven Bank ...mbers, Bradford. Quantities by the architects :—

Mason.—Thos. Lawrence, Horsforth, near Leeds	£1,000 0 0
Joiners.—B. Child & Sons, Horsforth, near Leeds	479 0 0
Plumber.—Tobias Brearcliffe, Horsforth, near Leeds	158 0 0
Plasterers.—B. Dixon & Co., Horton-lane, Bradford	109 0 0
Slaters.—Hill & Nelson, Horton-lane, Bradford	82 10 0
Painter.—Simpson Cockcroft, Allerton, near Bradford	27 0 0

HUNSTANTON.—For the construction of a sewer, London-...et, Brancaster, for the Docking Rural Sanitary Authority. ... James C. Walker, Surveyor, Rural Sanitary Authority's Offices, ...unstanton :—

Solden Hipwell	£125 0 0
William Curtis, Litcham (accepted)	105 0 0

LANCHESTER.—Accepted for the construction of about ...9 yards iron and stoneware pipe sewers, Burnopfield, for the ...on Rural Sanitary Authority. Mr. J. E. Parker, C.E., Union ...ices, Lanchester :—
George Robson, 6, Ridley Villas, Newcastle £562 10 8

LLANITHEL (Wales).—Accepted for the erection of Primitive ...thodist chapel and schoolroom. Mr. Geo. H. Daniel, architect, ...ntypool :—
H. J. Firbank, Newport £290
[Clear floor, no seats or rostrum.]
[Three others tendered.]

LONDON.—For the supply of 24,000 ft. of 21-in. rubbed York ...ing for the Bermondsey Vestry. Mr. Frank Sumner, Surveyor, ...wn Hall, Bermondsey :—

A. & S. Manuelle	£3 13 5	Silex Brahd.	
Gabriel	3 12 0	"	"
	3 18 6		
Cooper Bros.	3 18 6	"	"
Milnes & Co.	3 19 3		
	3 16 10		

LONDON.—For making up and paving Turneville-road, Fulham, for the Vestry of the parish of Fulham. Mr. James P. Norrington, C.E., Surveyor :—

	Roadway.	York.	Adamant.	Victoria.	Stuart's.	Imperial.	Indurated Victoria.	Concrete Paving.
H. J. Greenham	230	200	—	180	—	—	—	—
Imperial Stone Co.	—	—	—	—	—	154	—	—
G. Wimpey & Co.	213	202	147	—	—	—	—	—
Victoria Stone Co.	—	—	—	164	—	—	137	—
E. Parry	220	—	—	—	—	—	—	—
J. Mears	240	—	—	—	—	—	—	—
A. Brickell	175	—	—	—	—	—	—	—
Nowell & Robson	253	210	—	—	—	—	—	—

LONDON.—For the erection of two houses in Strafford-road, Kilburn, N.W., for Mr. P. Luke. Mr. G. A. Sexton, architect, 135, Fernhead-road, W. :—

R. Croull	£695 0	G. Truscott	£589 13
Diamond & Porter	598 19	R. Wood	585 10

LONDON.—For the supply of 2,100 yards granite-pitchings, for the Vestry of St. Matthew, Bethnal Green. Mr. F. W. Barratt, Surveyor, Vestry Hall, Church-row, Bethnal Green, London, E. :—

	Per yd. s. d.		Per yd. s. d.
G. G. Rutty	12 9	R. & J. Fennings	12 6
Wm. Gibbs	12 9	A. & F. Manuelle	12 5
W. Muir & Co.	12 8	Mowlem & Co.	12 4
Saml. Trickett	12 8	W. Griffiths, Kingsland*	12 1

* Accepted.

LONDON.—For alterations at 79, Finchley-road, St. John's Wood :—

Yardley & Sons	£272	Foller	£264
Rocock	268	Weston	167

LONDON.—For cleaning and painting Amwell-street Parochial Schools, Clerkenwell :—

Gooden	£172 10 0	E. Houghton & Son	£136 19 2
Robinson	172 10 0		

LONDON.—For additions to St. Francis Schools, Peckham, S.W. Mr. J. B. Lofting, surveyor :—

Longley	£549	Stimpson & Co.	£510
Higgs & Hill	520	Holloway Bros.	504
Lorden & Sons	519	Smith & Sons	491
Harris & Co.	517	F. G. Minter	467

LONDON.—For exterior painting at the Curtain-road School, for the School Board for London :—

Hearle & Farrow	£196 0	W. Lawrence	£118 0
Wales	146 0	Browning	110 0
Lawrence & Sons	135 0	Martin	95 10
Frampton	127 0	Staines & Son	88 0
Knight & Son	120 10	F. G. Minter	87 0

LONDON.—Accepted for sanitary works to five houses at Parnell-road, Old Ford, Poplar, for Mr. E. Squires. Mr. H. C. Marston, surveyor, Walthamstow :—
Francis Prater, Mildmay Park £256 10 0

LONDON.—Accepted for alterations and repairs to the "Woodville Arms" tavern, Mildmay-road, Islington, for Mr. J. Scott. Mr. H. C. Marston, surveyor, Walthamstow :—
Francis Prater, Mildmay Park £202 6 0

LONDON.—For building new roof on St. Andrew's Buildings, Holborn Circus, for Mr. Millar. Mr. Lewis Solomon, architect :—

Wordsley	£670	Wm. Reason (accepted)	£553

LONDON.—For building new synagogue, Great Alie-street, Whitechapel, for the Committee. Mr. Lewis Solomon, architect :—

Scott	£2,870	Coulsell	£2,143
Jones & Co.	2,698	Roberts	2,123
Wm. Reason	2,170		

LONDON.—For building new warehouse, St. Mary Axe, City, for Mr. Sander Lazarus. Mr. Lewis Solomon, architect :—

Beer	£1,923	Roberts	£1,739
Dove	1,895	Scott	1,685
Coulsell	1,773	Wm. Reason (accepted)	1,595

MOUNTAIN ASH (Glam.).—For the erection of hotel, stabling, &c., Penrhiwceiber, for Mr. Thomas Jenkins. Mr. S. Rooney, F.S.I., architect. Quantities by architect :—

John Lewis	£3,438 0	R. Owen	£2,940 16
D. C. Jones & Co.	3,249 0	W. Lissaman, junr.	2,853 0
David Davies	3,200 0	Cox & Bardo, Cardiff*	2,815 0
Newby & Co.	3,022 10	T. Rees	2,699 0
Howell Powell	2,985 0	J. Hopkins	2,600 0
Hatherley & Carr	2,957 0		

*Accepted.

NOTTINGHAM.—For the supply and delivery of cast-iron water-pipes, &c., Rugeley Waterworks, for the Local Board. Mr. W. H. Radford, C.E., Angel-row, Nottingham :—

Butterley Iron Wks.	£2,406 19 0	Stanton Iron Co.	£2,137 7 5
Cochraine & Co.	2,212 3 0	Woodroffe & Co., Rugeley*	2,137 0 0
J. T. Salisbury	2,196 13 8	J. Oakes & Co.	2,120 4 0
Staveley Coal & Iron Co.	2,180 7 6	J. & S. Roberts	2,041 17 0
Clay Cross Co.	2,164 4 5		

* Accepted.

PARKSTONE (Dorset).—For shop and house, Heatherlands, for Mr. E. Godwin. Mr. S. J. Newman, architect :—

W. Pearcey	£875 0 0	Crabb & Sharp	£625 17 8
W. J. Wallis	735 0 0	W. G. Crane, Poole*	600 0 0
F. Maddeford	677 0 0	E. F. Allen†	520 0 0
T. Gulliver	635 0 0		

* Accepted. † Withdrawn.

PARKSTONE.—For the erection of house, &c., at the Heatherlands Board School, Parkstone, for the Kinson School Board. Mr. Saml. J. Newman, architect, Ashley-road, Parkstone, Dorset :—

J. W. Lucas	£548 13	Maddeford	£427 0
J. W. Street	532 15	Crabb & Sharp	420 0
R. Allner	468 0	W. J. Wallis	413 0
T. Gulliver	445 0	T. Cole	410 0
E. B. Potts	439 0	W. J. Chinchen, Bournemouth*	400 0
Bath & Co.	437 0		
G. Baker	436 0		

* Accepted.

PENRHIWCEIBER (Wales).—For the erection of 36 cottages and making a new road, for the Building Club. Mr. T. Williams, surveyor, 1, Station-terrace, Penrhiwceiber :—

Thomas Rees	£7,103 0	S. Hawkins	£6,300 0
Edward Owen	6,932 6	Wood & Jones*	6,108 0
Robert Owen	6,780 0	John Rees	6,061 0
George Cheen	6,728 0	Howell Powell	5,940 0
John Lewis	6,563 0	Wm. Budding, Tydu, Mon. (accepted)	5,940 0
Jones & Rowlands	6,372 0		

* Road not included.

PLYMOUTH.—For erecting the North-road School, for the School Board of Plymouth. Messrs. Hine & Odgers, architects, Lockyer-street, Plymouth. Quantities by Messrs. Widnell & Trollope, Westminster :—

Paynter & Davey	£11,352	Kerswill	£8,940
Tozer & Son	10,645	Ambrose	8,830
Lethbridge & Son	10,250	Turpin	8,830
W. G. Goad	10,200	Blowey	8,680
Goad & Co.	9,660	Matcham & Co.	8,660
Blake	9,520	Roberts	8,590
Finch	9,200	Trevena	8,493
Lapthorne & Co.	9,050	J. Julian, Truro*	8,034

* Accepted.

RAWTENSTALL (Lancs.).—For the construction of main sewers (Contract No. 3) for the Corporation. Mr. Henry A. Cutler, C.E., Borough Surveyor, Municipal Offices, Rawtenstall :—

Enoch Tempest	£4,914 13 3	Geo. Taylor	£4,408 18 10
Hanson & Duckworth	4,708 12 1½	Brown, Phillips, & Co., Wigan*	4,375 12 8

[Engineer's estimate ..... £4,746 3 5.]
*Accepted.

REDBOURN (Herts).—For the erection of Vicarge House. Messrs. J. E. K. & J. P. Cutts, architects, London :—

A. Porter	£2,065 0	T. Dawson & Son	£2,008 18
W. Sear	2,036 0	C. Miskin	1,987 0

ROCHDALE.—Accepted for the execution of sewerage works—2,320 yds. of brick, and 330 yds. of pipe, &c., Bridgefold Estate, &c., for the Corporation. Mr. S. S. Platt, Borough Surveyor, Town Hall, Rochdale. Quantities by Surveyor :—
Fred Kershaw, 55, Crown-street, Rochdale £4,617 0 0

ROTHERHAM.—For the erection of a house and shop, School-street, Eastwood. Mr. Johnson, architect, Mary-street, Mashborough :—

Pascoe	£215 10	Elmore, Fitzwilliam-road*	£195 0
Needham	206 0	Marshall	194 0

* Accepted on mutual terms of benefit.

ST. GEORGE (Bristol).—For the execution of sewerage works (six contracts), for the Urban Sanitary Authority. Mr. T. L. Lewis, Engineer, Parochial Offices, St. George, near Bristol :—

Section No. 1.

A. Krauss	£14,500	F. Martin, St. George (accepted)	£9,280
Lloyd & Powell	9,678		

Section No. 3.

A. Krauss	£812	F. Martin	£630
Lloyd & Powell	694	Thomas & Webb (accepted)	619
G. Jones	678		

Section No. 4.

A. Krauss	£220	Thomas & Webb	£132
Lloyd & Powell	197	G. Jones (accepted)	132
F. Martin	196		

Section No. 5.

A. Krauss	£550	G. Jones (accepted)	£386
F. Martin	521	Thomas & Webb	385
Lloyd & Powell	492		

Section No. 6.

A. Krauss	£640	Lloyd & Powell	£549
F. Martin	559	Thomas & Webb (accepted)	435

ST. ALBANS.—For sewering, paving, metalling, &c., Ridgmont- and Grosvenor-roads, for the Corporation. Mr. George Ford, City Surveyor, Victoria-street, St. Albans :—

James Dickson	£1,699 0 0		
George Capper, St. Albans (accepted)	1,343 10 0		

SOUTHAMPTON.—For the erection of two houses in the Western Shore-road, for Mr. James H. Bennett. Mr. Ingalton Sanders, architect, 23 Portland-street, Southampton. Quantities by the architect :—

Reeks	£1,418	Rowland & Son	£1,199
Jordan	1,330	Dyer & Sons	1,152
Warden	1,320	Walters	1,117
Stevens & Son	1,287	Witt, Southampton*	1,075

* Accepted subject to alterations.

SOUTHAMPTON.—For brickwork, carpentry, and joinery in the erection of Inman Hotel, Southampton, for Mr. William Phillips. Mr. Ingalton Sanders, architect, 23, Portland-street, Southampton. Quantities by the architect :—
W. Smith £535 0 0

SOUTH BRENT (Devon).—For the erection of two shops and one cottage. Mr. Barrons, architect, Totnes :—

R. Veale & Son	£705 10 0	R. Farnall, jun.	£649 12 6
J. Cousins	676 16 6	R. S. Cranch	644 15 0
A. C. Johns	665 0 0	R. Codd & Sons, South Brent (accepted)	475 10 0
Farr Bros.	665 0 0		

STAINLAND (Yorks.).—For supplying and laying ashlar setts (130 yards), for the Local Board. Mr. Jas. H. Walker, Surveyor, Local Board Offices, Mechanics' Hall, Stainland :—
S. Broadbent & Sons, Sowood ....£0 3 4 per sq. yd. (setts)
Edwards & A. Kroyd, Stainland .. 0 0 4½ per lin. yd. (laying)

TIVERTON (Devon).—For the erection of stables, coach-house, &c., Worth House, Washfield, for Mr. A. de Las Casas. Mr. Wm. Rowe, architect, Tiverton :—

Grater Bros.	£1,585 8	Brealy	£920 0
Tucker & Pyle	1,249 0	Gibbons & Collard, Tiverton*	873 0
Loosemore & Parr	1,098 10		
Physick	1,070 0		

* Accepted.

WAKEFIELD.—Accepted for additions to the girls' high School, Wakefield, for the Governors of the Wakefield Charities. Mr. Wm. Watson, arhhitect, Barstow-square, Wakefield :—

Excavating, Building, and Stone.—Bagnall Bros., Wakefield	£314 0 0
Slating.—John Illingworth, Wakefield	15 0 0
Plastering.—T. C. Tattersall, Wakefield	12 7 9
Carpenter and Joiner.—N. Ibbottson, Wakefield	119 15 8
Plumbing, Glazing, and Ironwork.—S. Atkinson, Wakefield	136 0 0
Painting.—Goodall, Lister, & Co., Wakefield	11 15 0
	£608 18 5

[Thirty-one tenders received.]

WAKEFIELD.—Accepted for four almshouses, Boyne Hill, Chapelthorpe, near Wakefield, for Col. Charlesworth, M.P. Mr. William Watson, architect, Wakefield :—

Excavating, Brick, and Stone.—F. W. Oxley, Newmillerdam	£300 0 0
Tiling.—W. Atkinson, Leeds	86 6 0
Plastering.—T. C. Tattersall, Wakefield	20 16 5
Carpenter and Joiner.—Thos. Jagger, Crigglestone	151 10 0
Plumbing, Glazing, Ironwork.—Saml. Atkinson, Wakefield	62 15 0
Painting.—S. Broadbent & Son, Wakefield	12 18 6
	£724 5 11

[Thirty-two tenders received.]

WAKEFIELD.—For the erection of a chapel for the Primitive Methodist Connexion, at Ryhill. Mr. Walter E. Richardson, architect, 28, Bond-street, Leeds :—

Bricklayer and Mason.—Geo. Parker, Hemsworth	£453 0 0
Joiner.—Ed. Cuttle, Hemsworth	344 4 6
Slater.—T. E. Heavyside, Leeds	51 18 0
Plumbers, Glaziers, and Painters.—J. Snowden & Son, Ossett	60 0 0
Plasterer.—J. E. Cookson, Heckmondwike	29 0 0

WAKEFIELD.—Accepted for enlarging the St. John's Clarendon-street Schools, Wakefield. Mr. William Watson, architect, Wakefield:—

Excavating, Brick, and Stonework.—Flower Bros.	£499 0 0
Slating work.—Wm. Atkinson, Leeds	74 18 0
Plastering.—Charles Driver	33 0 0
Carpenter and Joiner.—Henry Blackburn	215 10 0
Plumbing, Glazing, and Ironwork.—Saml. Atkinson	164 0 0
Painting.—Chas. Turner & Son	13 7 6
	£999 15 6

[Thirty-six tenders received.]

WAKEFIELD.—Accepted for the Assembly Room at the Market Tavern, for the Wakefield Coffee Taverns' Co., Limited. Mr. William Watson, architect, Wakefield:—

Excavating, Brick, and Stone.—Flower Bros., Wakefield	£651 18 6
Slating.—Pickles Bros., Leeds	43 8 0
Plastering.—Chas. Driver, Wakefield	55 0 9
Carpenter and Joiner.—John Loyd, Wakefield	356 18 4
Plumbing, Glazing, and Ironwork.—Samuel Atkinson, Wakefield	202 5 1
Painting.—Chas. Turner & Sons, Wakefield	18 14 8
	£1,328 5 4

[43 tenders received.]

WATFORD.—For levelling, paving, flagging, &c., Westland- and two other roads, for the Local Board. Mr. W. Waterhouse, Engineer, 14, High-street, Watford:—

Canterbury-road.

Wm. Tearle	£225 0 0
F. Dupont, Watford, E. Colchester*	207 0 0
Engineer's estimate	241 13 0

Westland-road.

Wm. Tearle	£330 0 0
F. Dupont, Watford, E. Colchester*	315 0 0
Engineer's estimate	389 12 0

Wellington-road.

Wm. Tearle	£230 0 0
F. Dupont, Watford, E. Colchester*	223 0 0
Engineer's estimate	272 6 0

* Accepted.

WILLINGTON (Co. Durham).—For the erection of a mortuary chapel at the cemetery, for the Local Board. Mr. Jno. Cooke, surveyor, 2, West End terrace, Willington:—

J. S. Craman, Willington (accepted)	£305 0 0
Jonathan Vickers	302 0 0
Thomas Hilton	300 0 0

WIMBLEDON.—For alterations and decorations at "Currie Hill," Wimbledon Park, for Mr. Peter Mumford. Mr. Aston Webb, architect, 19, Queen Anne's Gate, Westminster. Quantities by Messrs. Corderoy & Selby:—

Crossley	£2,443 15 9	Jno. Gibbs	£1,993 0 0
Nightingale	2,197 0 0	Parsons & Townshead	1,940 0 0
Fox, Son, & Co.	2,165 0 0	Lorden & Son	1,885 0 0
Kiel	2,081 0 0	J. G. Fraser, Wimbledon	1,722 0 0
Whitehead Bros.	2,080 0 0		
Harmer	2,062 0 0		

WIMBLEDON.—For new chancel and procession path, Church of the Sacred Heart, Wimbledon. Mr. F. A. Walters, F.S.A., architect. Mr. John B. Lofting, surveyor:—

	Estimate 1.	Estimate 2.
Stimpson & Co.	£7,395	£1,075
F. Higgs	7,350	1,050
Smith & Sons	7,177	980
Goddard	6,847	924
Longley	6,769	973
Lorden & Sons	6,666	919
F. G. Minter	6,593	890

WIMBLEDON.—For the construction of outfall and erection of ejector station, &c., Durnsford-road, for the Local Board. Mr. C. H. Cooper, C.E., Broadway, Wimbledon:—

B. Cook & Co.	£1,325 0 0
Ed. Iles, Wimbledon (accepted)	1,270 9 7

WITHINGTON (Lancs.).—For the supply of 670 yds. wrought-iron fencing and sundry gates, for the Local Board. Mr. A. H. Mountain, C.E., Town Hall, Withington:—

S. Haynes & Co.	£617 7 4	W. H. Wharton	£180 14 1½
Richardson, Ellison, & Co.	350 6 6	Wilkes, Ltd.	180 12 1
J. W. Watson, Clarke, & Co.	336 3 6	Walker Bros.	178 9 1
E. Worrall & Co.	263 7 0	W. Miller & Sons	177 15 8
Chas. Bailey	213 14 1½	Hydes & Nigfull	175 3 3
Clarke & Skakeshaft	196 13 3½	Rowland Bros.	172 0 3
Picksley, Sims, & Co.	192 6 0	Hill & Smith	171 19 8
Hargreaves & Dewhurst	192 6 3	John Elwell	170 2 8
W. H. Smith & Co.	190 14 5	H. Hollindrake	169 1 8
G. B. Smith & Co.	190 2 3	J. B. Hollom	163 13 2
G. H. Fletcher & Co.	188 2 8	W. Hayward & Sons	163 13 2
Francis, Morton & Co.	186 8 3	A. E. Mitchell & Co.	163 13 2
Blakeley & Pickering	185 6 0	The Economic Fencing Co.	163 13 2
E. C. & J. Keay, Ltd.	182 11 0	J. Mountford & Co.	161 7 8
T. W. Palmer & Co.	181 7 1	E. J. Raybould & Co.	153 11 9
		Bayliss, Jones, & Bayliss, Wolverhampton*	152 17 5½

* Accepted.

WOKING.—For the erection of Wesleyan school buildings, for the Wesleyan Church. Mr. M. H. Pocock, architect, Vann House, near Godalming:—

J. Bull	£1,252 10	Harris & Son, Woking*	£1,015 0
Ingram & Son	1,084 0		

* Accepted.

WOLVERHAMPTON.—Accepted for the erection of house, Evah-street, for Mr. Joel Hobson. Mr. J. Mason, architect, Victoria-chambers, Bilston-street, Wolverhampton:—

E. Hughes, Coleman-street	£297 0 0

WOODFORD WELLS (Essex).—For alterations and repairs to the "Horse and Well" public-house, for Mr. S. M. Bush. Mr. G. Percy S. Wright, architect, 62, Studley-road, Forest Gate. Quantities by Mr. Geo. Francis, 20, Finsbury Circus, E.C.:—

General Work.

Watson	£797	Arber	£657
Wordley	750	Green & Smith	636
Harris & Wardrop	743		

New Front.

Watson	£127	Wordley	110
Arber	123	Green & Smith	108
Harris & Wardrop	113		

WORSBOROUGH (Yorks.).—For the construction of a river wall, for the Local Board. Mr. Jno. Whitaker, surveyor, Saville House, Worsborough:—

H. Burrows & Son	£284	Higham & Porter	£220
Duncan & Jones	270	William Guest, Worsbro'*	132

* Accepted.

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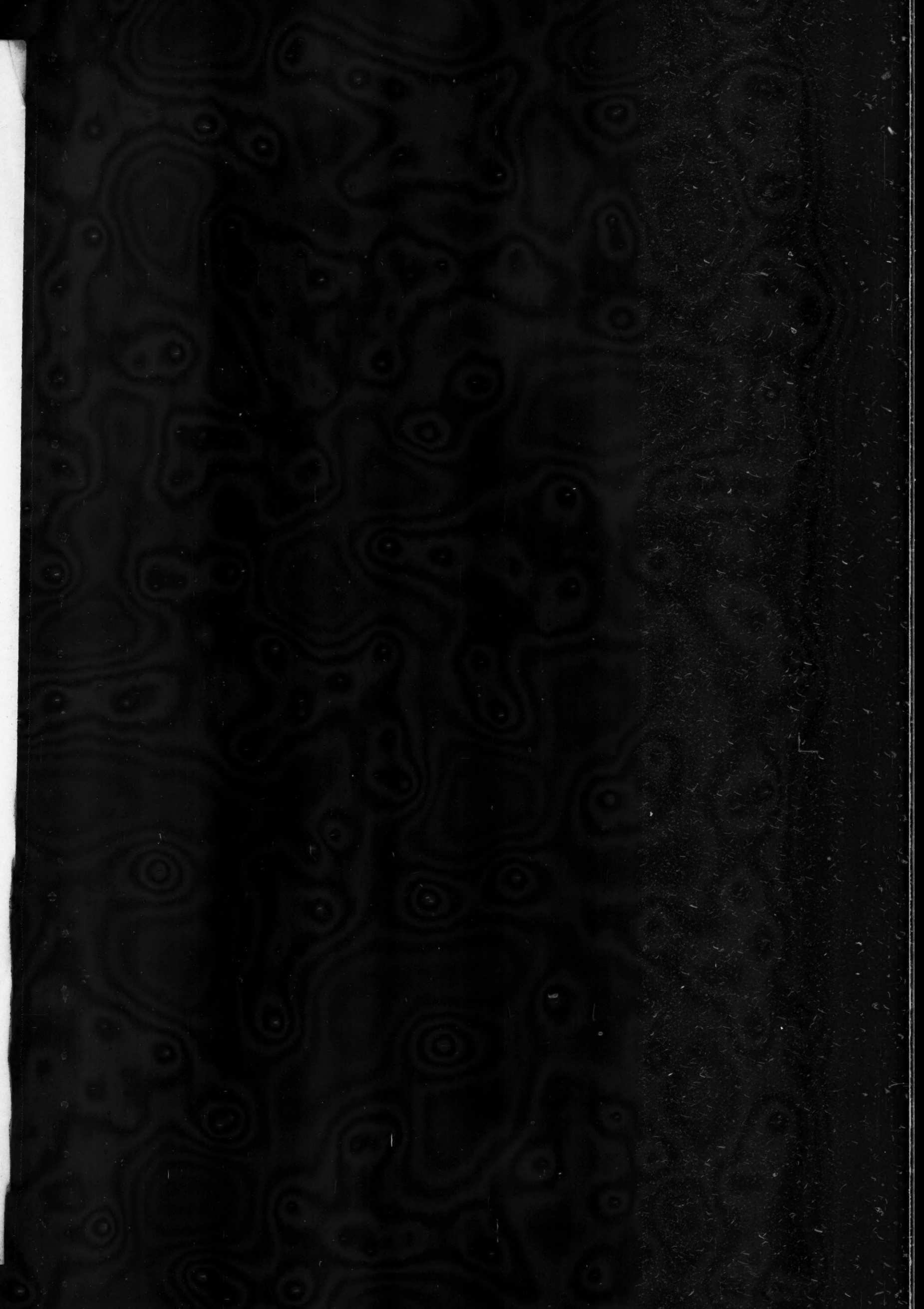

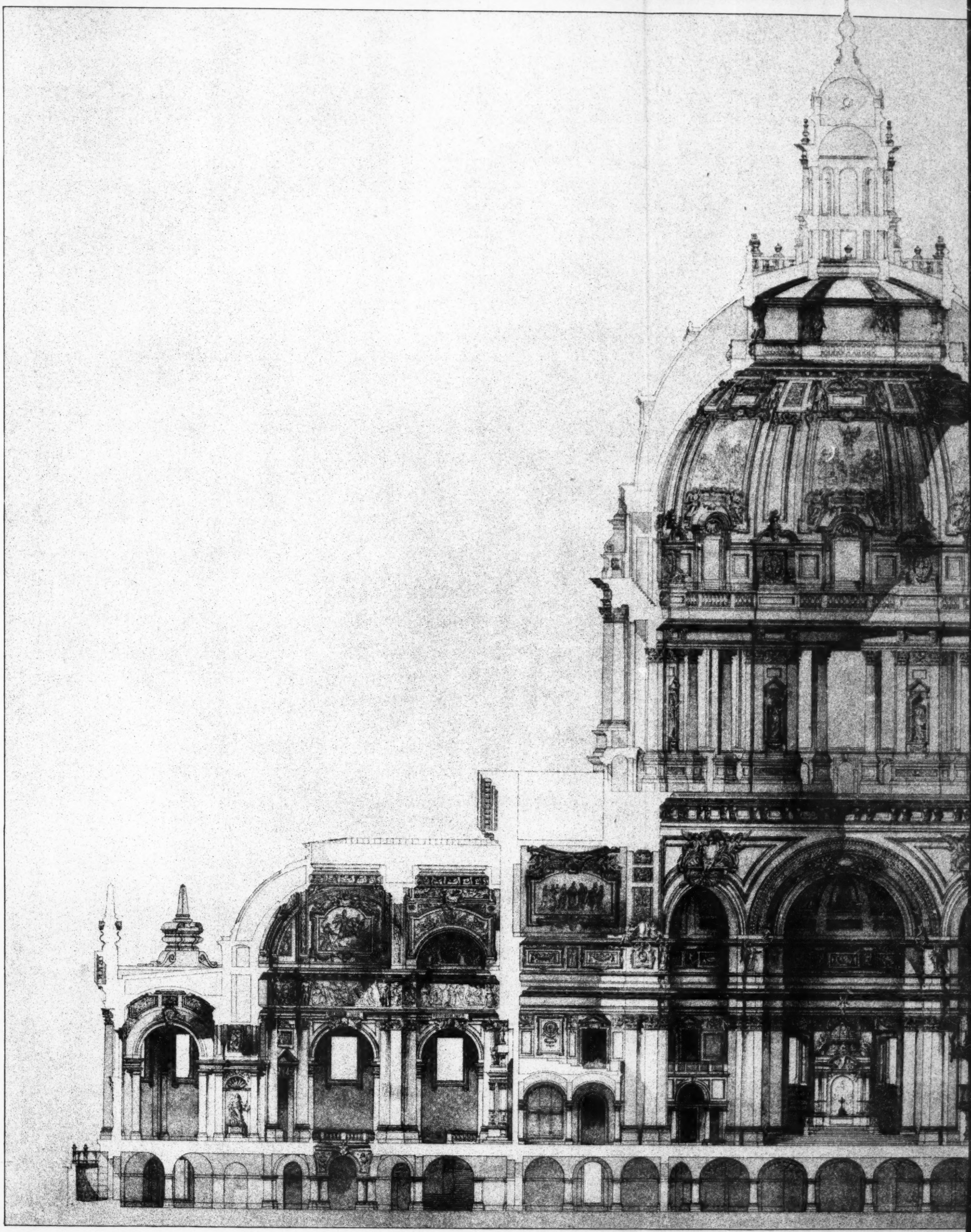

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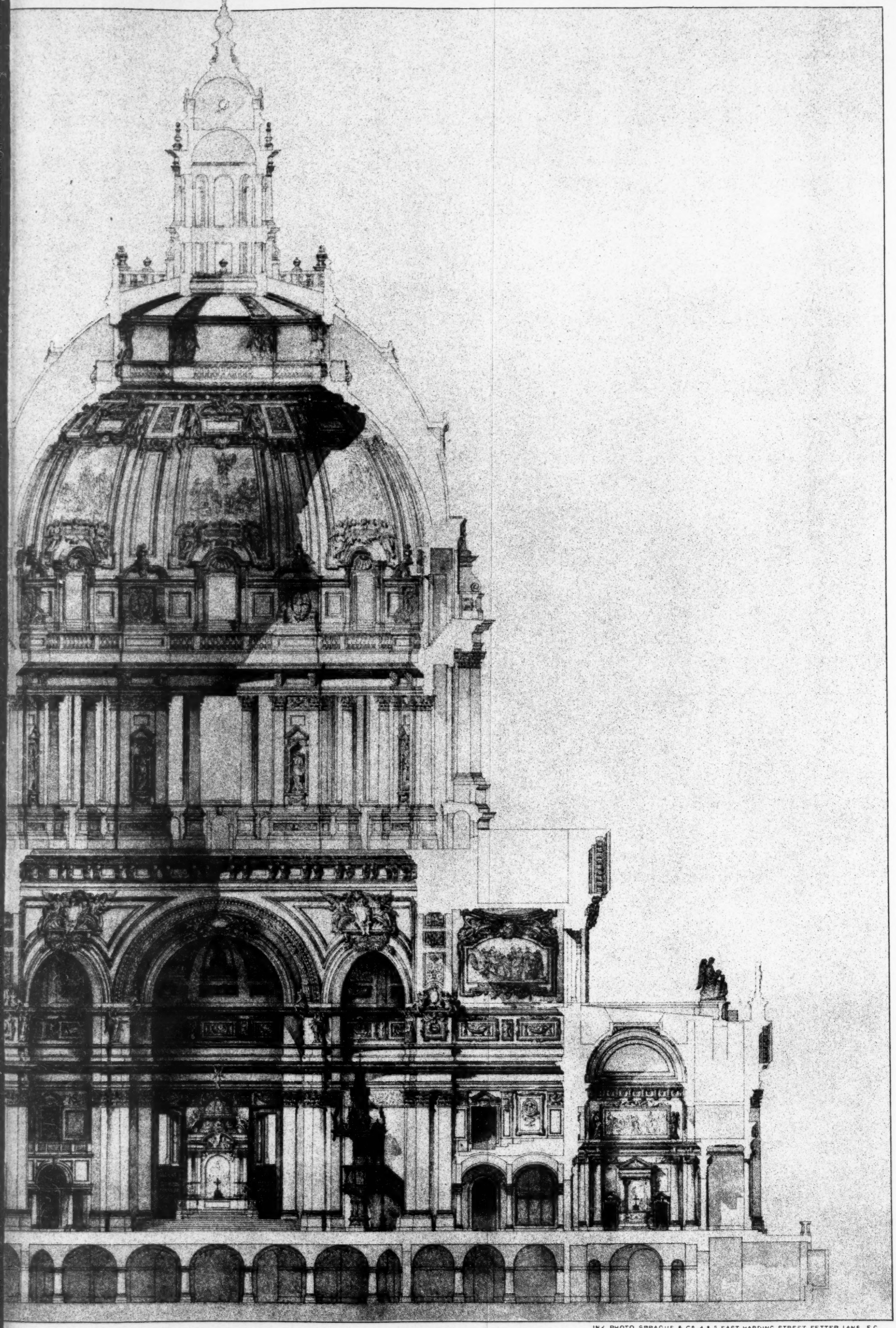
SECTION ON LONGER AXIS, FACING ALTAR (SEE PLAN).



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LONGER AXIS, FACING ALTAR (SEE PLAN).

THE NEW CATHEDRAL FOR BERLIN.

PROFESSOR RASCHDORFF, ARCHITECT.

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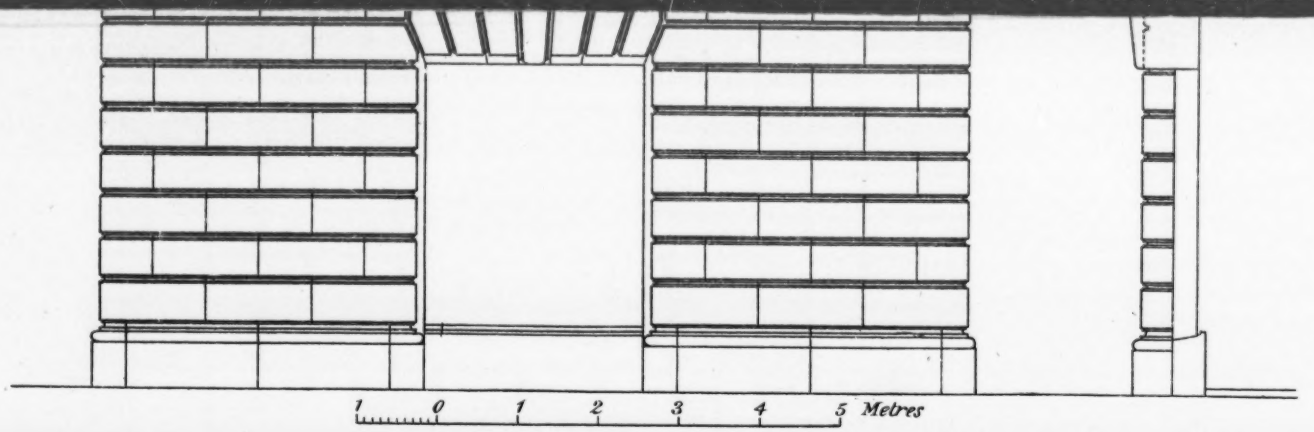


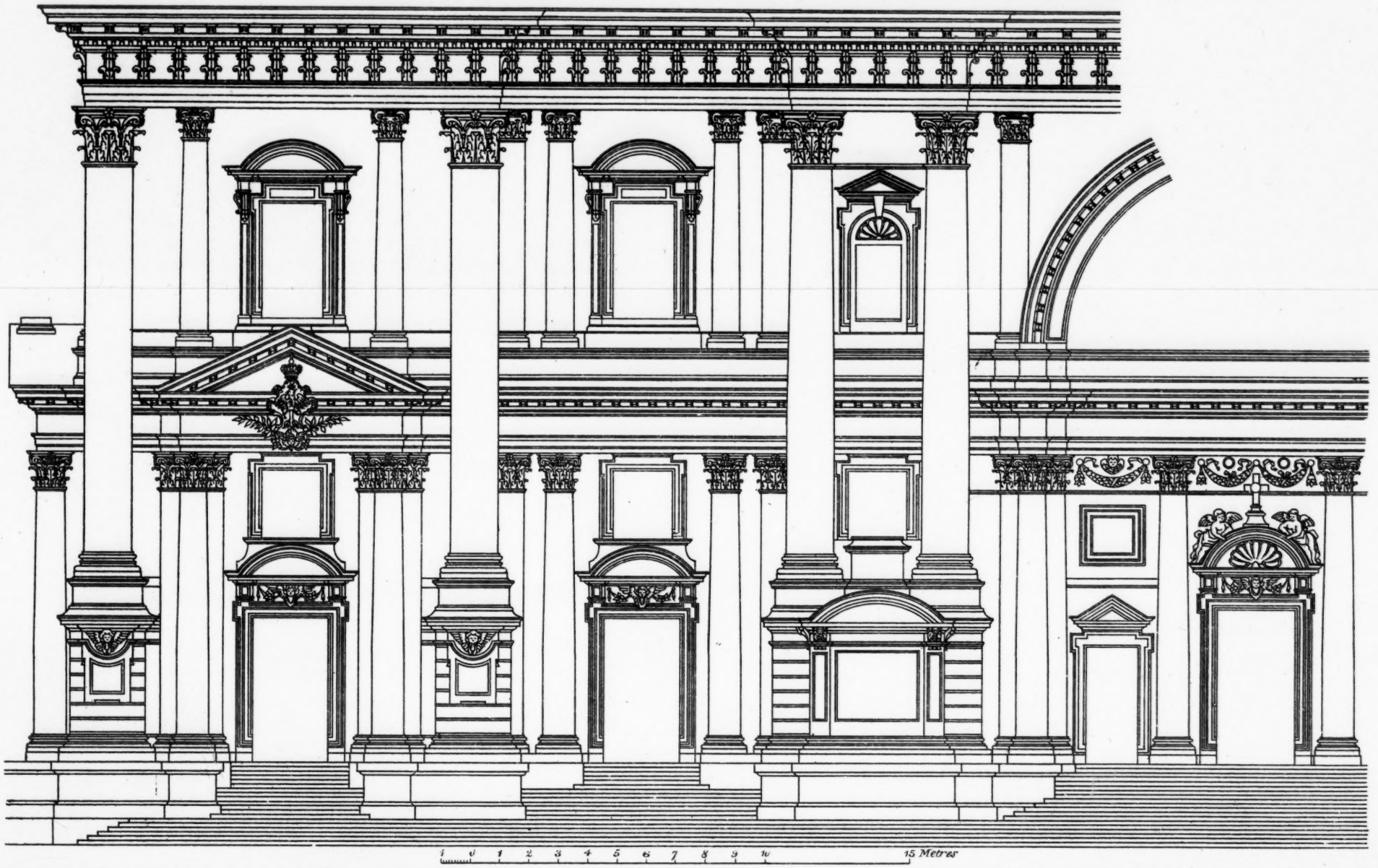
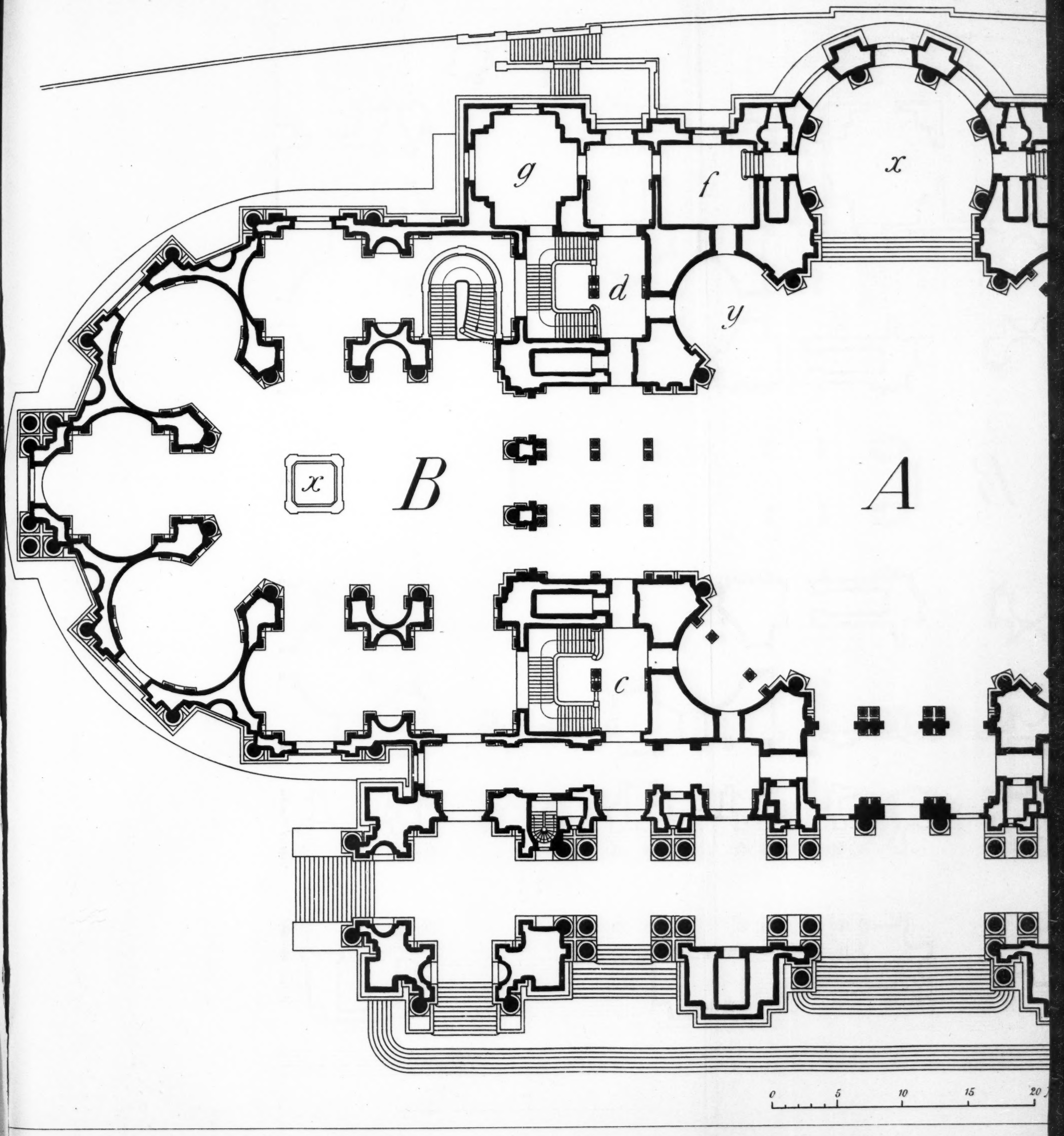
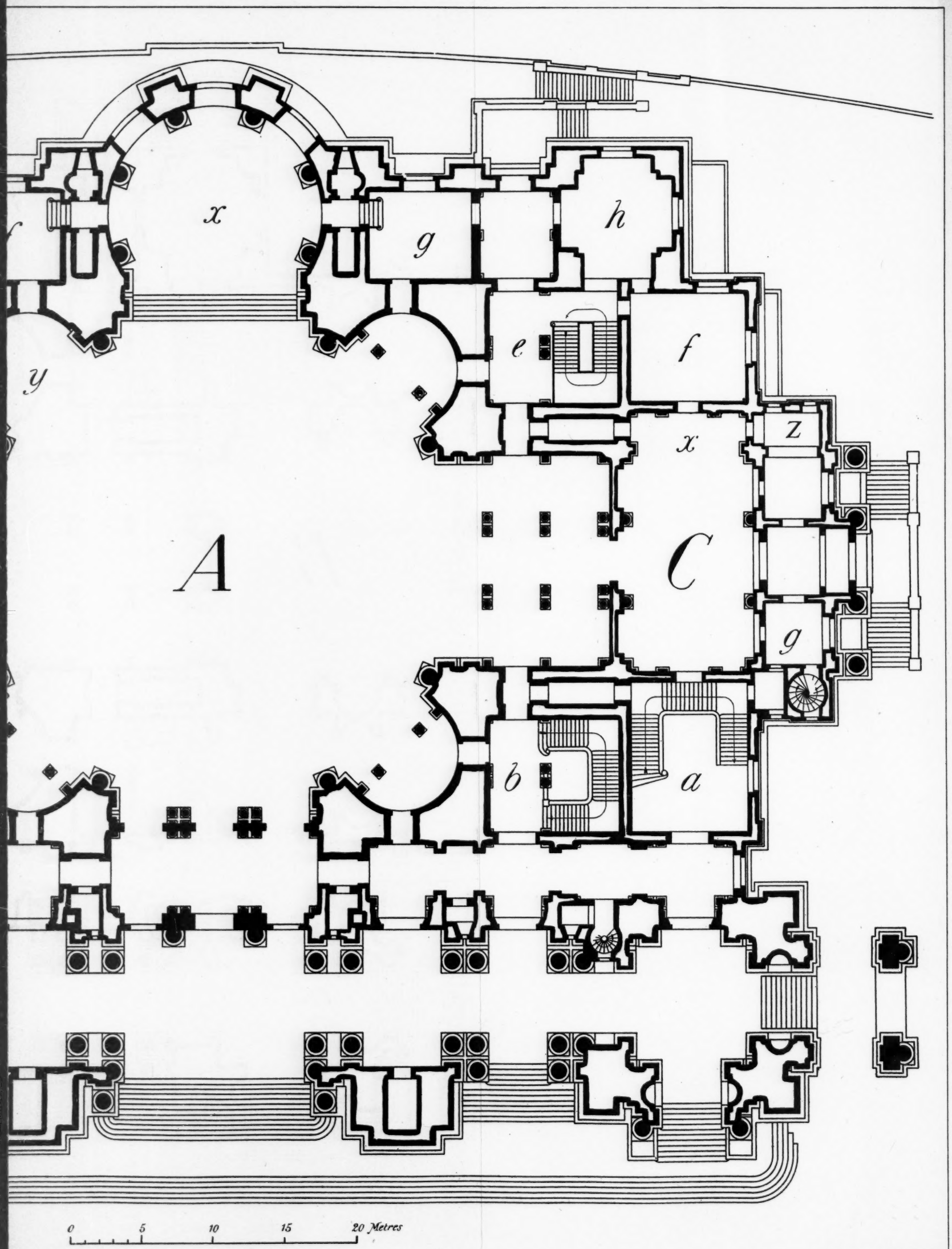


PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.



THE NEW CATHEDRAL FOR BERLIN.—Professor Raschdorff, Architect.
GROUND PLAN.



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FOR BERLIN.—PROFESSOR RASCHDORFF, ARCHITECT.

GROUND PLAN.